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BE JUST AND FEAR NOT.

CITY OF CARLISLE.

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REPORT

ON THE

Sanitary Condition of the City of Carlisle,

FOR THE YEAR 1909,

BY

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Medical Officer of Health,
School Medical Officer and
Surgeon to the Police Force.

CARLISLE:
Chas. Thurnam & Sons, Printers, English Street.

HEALTH COMMITTEE

OF THE

CARLISLE CITY COUNCIL, 1909—1910.

Mr. Councillor Dixon, J.P., Chairman.

Mr. Alderman Collin, Deputy Chairman.

Mr. Councillor Dalton

,, ,, Edmondson

,, ,, Hodgson

,, ,, Hutchinson

Mr. Councillor King

,, ,, Little

,, ,, Ridley

,, ,, Thomson

and

His Worship the Mayor (Mr. Councillor Phillips).

OFFICIALS OF THE PUBLIC HEALTH DEPARTMENT.

Medical Officer of Health.

JOSEPH BEARD, F.R.C.S. (Edin.), L.R.C.P. (Lond.), D.P.H. (Cantab.).

Chief Sanitary Inspector.

*C. W. HILL.

Inspector under Sale of Food and Drugs Act.

*C. W. HILL.

Assistant Inspectors.

*WALTER R. PERKS.
*GEO. W. HARRISON.

Clerical Staff.

ARTHUR PROUDFOOT.
EDWARD BROADHEAD.

Public Analyst.

ROBERT HELLON, Ph.D., F.I.C.

Veterinary Surgeon.

R. CRAIG ROBINSON, M.R.C.V.S.

*Certificated Inspectors.

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STATISTICAL SUMMARY FOR THE YEAR 1909.

Area in Acres	2,028
Estimated Population (Middle of 1909)	50,675
Population per Acre	24·9
Number of Inhabited Houses (1901 Census)	9,464
Rateable Value	£226,619
Number of Inhabitants per House at the last Census	4·7
Birth-Rate per thousand living	22·6
Death-Rate per thousand living ... Nett	13·9
Infantile Mortality per thousand Births	123·6
Percentage of Uncertified Deaths	2·6
Total Deaths from Diarrhœa	Nil
Phthisis Death Rate per thousand living	1·26
Infectious Cases Notified	244
Infectious Cases Isolated at the Fever Hospital	116
Total Rainfall in inches	33·13 ins.

To the Chairman and Members of the Health Committee of the Carlisle City Council.

Mr. Chairman and Gentlemen,

I have the honour to submit to you, in accordance with the regulations of the Local Government Board, my Annual Report upon the Health and Sanitary Condition of the City during the year 1909.

The report deals with the birth and mortality statistics, and the work carried out by this department, including the measures adopted against the prevention of epidemic and other diseases.

I have to thank you for your support during the past year.

My thanks are also due to the members of my staff for their whole-hearted co-operation, and to the Town Clerk for his valuable advice and assistance upon many occasions.

I am, Mr. Chairman and Gentlemen,
Your obedient Servant,
JOSEPH BEARD.

Health Department,
19 Fisher Street, Carlisle,
April 14th, 1910.

STATISTICS

RELATING TO

BIRTHS, DEATHS, AND CAUSES OF DEATHS, Etc.

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BIRTHS.

The number of births registered during the past year was 1,149, of which 590 were males and 559 females. Calculating these Births upon the estimated population of 50,675, the birth-rate for the year was 22.6 per 1,000, which shows a decline of 1.8 per 1,000 compared with 1908, when the birth-rate was equal to 24.4 per 1,000. These figures show that the birth-rate during the past year was the lowest on record. The rate varies from 11.6 per 1,000 living in Rickergate Ward to 30.4 per 1,000 living in Denton Holme Ward.

Year.	Number of Births registered.			Total.
	Males.	Females.	Per 1,000 of estimated population.	
1908	676	547	24.4	1,223
1909	590	559	22.6	1,149

The birth-rate for the whole of England and Wales was 25.6 per 1,000 living, and for the 76 great towns 25.7 per 1,000. The 142 smaller towns (to which classification Carlisle belongs) show a birth-rate of 24.8 per 1,000, whilst for England and Wales, less the 218 great and smaller towns, the rate was 25.6 per 1,000 living.

These figures show that the rate in each of the groups mentioned was slightly lower last year than in 1908, but they do not exhibit so marked a decrease as the rate for this city shows.

A glance at the columns (Post) will serve to demonstrate the almost uninterrupted fall in the birth-rate from the years 1876, 1877, 1878, when the rates were 38.6, 38.5, and 38.7 per 1,000 respectively, to the past year with its rate of 22.6 per 1,000.

This heavy fall in the birth-rate, so far as its effect upon the population is concerned, has been to some extent modified by a decline in the death-rate during the same period, but the important point to be observed is that the death-rate cannot continue to decline indefinitely, and as the natural increase of the population (*i.e.*, the increase caused by excess of births over deaths) has, especially since the last census, been low, what may be regarded as the effective increase of the population has been considerably weakened, and this weakness is intensified by the additional loss due to emigration and other statistical factors to which attention will be directed later.

ILLEGITIMATE BIRTHS.

The number of illegitimate births registered during the year was 88, or equal to 76.7 per 1,000 of the total births registered; the distribution of these births to the two Registration Sub Districts was as follows:—

St. Cuthbert's—44 illegitimate births, or 83.8 per 1,000 births.

St. Mary's—44 illegitimate births, or 70.5 per 1,000 births.

The number of illegitimate births registered was in excess of 1908, when 69 illegitimate births were registered, giving a rate of 56.4 per 1,000 of the total births, and a proportionate distribution to the Sub Registration Districts as follows:—

St. Cuthbert's—34 births, or 66.2 per 1,000 births.
St. Mary's— 35 do. 54.6 do.

Table showing details of the births in the two Sub Registration Districts, 1909 :—

QUARTER ENDING.	ST. MARY.			ST. CUTHBERT.			TOTALS FOR CITY.
	Males.	Females.	Totals.	Males.	Females.	Totals.	
March 31	89	78	167	59	65	124	291
June 30.........	79	76	155	67	63	130	285
September 30	81	78	159	77	67	144	303
December 31..	71	72	143	67	60	127	270
Totals......	320	304	624	270	255	525	1149

The following list shows the annual birth-rate per 1,000 at all ages in Carlisle since 1875, which appears to be the earliest record available :—

Year.	Birth-rate.
1875	35.5
1876	38.6
1877	38.5
1878	38.7
1879	37.7
1880	37.0
1881	36.0
1882	35.3
1883	32.3
1884	35.0
1885	34.0
1886	33.0
1887	31.3
1888	33.5
1889	30.6
1890	30.0
1891	30.8
1892	30.5
1893	34.5

Year.	Birth-rate.
1894	32.0
1895	31.4
1896	29.6
1897	30.8
1898	30.0
1899	29.4
1900	30.1
1901	27.3
1902	27.0
1903	28.4
1904	26.9
1905	24.3
1906	25.3
1907	23.8
1908	24.4
1909	22.6

DEATHS.

The total number of deaths registered in the City during 1909 was 735 as compared with 713 in 1908, making a gross death-rate for the year under review of 14.5 per 1,000 of the estimated population living at all ages.

The deaths of 27 persons belonging to the City occurred in public institutions outside, while the deaths of 53 persons not belonging to the City occurred in public and other institutions within the City.

After deduction of the 53 deaths of persons belonging to other districts, and the addition of the 27 deaths of Carlisle residents which occurred in districts beyond the City, a nett figure of 709 results, which is the actual number of deaths belonging to the City, and shows the DEATH-RATE DURING 1909 TO BE 13.9 PER 1,000 OF THE ESTIMATED POPULATION LIVING AT ALL AGES.

The corrected death-rate for the whole of England and Wales for the past year was 14.5 per 1,000 living at all ages, and for the 76 great towns 15.6 per 1,000. The rate for the 142 smaller towns (amongst which Carlisle is found) was 14.5, whilst the rate for England and Wales, less the 218 great and smaller towns, was 13.6 per 1,000. Thus it will be seen that the general death-rate of Carlisle compares favourably with the above, and on the whole it is to be regarded as a satisfactory rate, but it will be observed in further pages of this report that some of its contributary units exhibit unfavourable comparison, and call for further deliberation and attention.

Table showing details of the deaths in the two Sub-Registration Districts, 1909:—

Quarter Ending.	St. Mary.					St. Cuthbert.					Totals for City.
	Males.		Females.		Totals.	Males.		Females.		Totals.	
	Under 5 years	Over 5 years	Under 5 years	Over 5 years		Under 5 years	Over 5 years	Under 5 years	Over 5 years		
March 31	20	36	9	46	111	12	28	16	36	92	203
June 30	12	41	14	34	101	19	31	9	24	83	184
Sept. 30	16	32	12	30	90	8	18	4	20	50	140
Dec. 31	22	37	14	53	126	13	31	8	30	82	208
Totals	70	146	49	163	428	52	108	37	110	307	735

Table showing the number of deaths at various age periods in Carlisle:—

	All Ages.	Under 1 Year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	St. Mary's Sub-District.	St. Cuthbert's Sub-District.
No. of Deaths at all ages and age periods	735	144	63	23	37	270	298	428	307

Number of deaths of persons not belonging to the district occurring in public and other institutions inside the City:—

Cumberland Infirmary	31
Fusehill Workhouse	13
Strathclyde House	5
Fever Hospital	1
Police Cells (Suicide)	1
Private Nursing Homes	2
Total	53

Number of deaths of persons belonging to the district occurring in public and other institutions outside the City:—

Garlands Asylum	18
St. Joseph's Home	6
Epileptic Home, Maghull, Lancs.	1
Whinrigg Toll, New Monkland, Lanark	1
Royal Infirmary, Preston	1
Total	27

Table showing Birth-rates and Death-rates for Carlisle as compared with England and Wales for 1908:—

	Annual Rate per 1,000 living.				Deaths under 1 Year to 1,000 Births.
	Births.	Deaths.		Principal Epidemic Diseases.	
		Crude.	*Corrected		
England and Wales	25·6	14·5	14·5	1·12	109
76 Great Towns	25·7	14·7	15·6	1·42	118
142 Smaller Towns	24·8	13·9	14·5	1·08	111
England and Wales, less the 218 Towns	25·6	14·5	13·6	0·80	98
CARLISLE	**22·6**	**14·5** †	**13·9** ‡	**0·5**	**123.6**

* The corrected death-rates are the rates which would have been recorded had the sex and age constitution of the populations of the several areas been identical with that of England and Wales, as enumerated in 1901.

†Includes deaths in the City of Non-Residents.

‡As there is no factor for correction for this City, this figure represents the death-rate after exclusion of Non-Residents dying within the City.

Table showing the gross Death-rate of Carlisle from 1874 to 1909 inclusive:—

Year.	Deaths from all causes.		Deaths from Principal Zymotic Diseases.	
	No. Registered.	Rate per 1000 of Population.	No. Registered.	Rate per 1000 of Population.
1874	1055	32·6	367	11·3
1875	934	29·2	201	6·3
1876	800	25·0	100	3·0
1877	750	23·0	55	1·7
1878	828	23·5	83	2·3
1879	818	23·5	76	2·0
1880	777	22·2	106	3·0
1881	717	20·0	67	1·8
1882	852	23·6	189	5·0
1883	779	21·0	67	1·8
1884	783	21·0	38	1·0
1885	769	20·3	66	1·7
1886	745	19·4	62	1·6
1887	772	19·9	75	1·9
1888	722	18·5	59	1·5
1889	723	18·1	69	1·7
1890	792	19·5	65	1·6
1891	789	20·1	63	1·6
1892	805	20·2	55	1·3
1893	868	21·6	145	3·6
1894	780	19·2	44	1·1
1895	794	19·4	33	0·8
1896	753	18·2	30	0·7
1897	811	19·4	54	1·3
1898	935	22·2	103	2·4
1899	818	19·2	42	0·9
1900	807	18·8	60	1·4
1901	810	17·8	64	1·4
1902	856	18·5	82	1·7
1903	813	17·4	58	1·2
1904	933	19·7	63	1·3
1905	783	16·3	66	1·3
1906	811	16·7	34	0·7
1907	848	17·1	77	1·5
1908	713	14·2	42	0·8
1909	735	14·5	30	0·5

CAUSES OF DEATH.

Table showing the diseases causing the largest number of deaths during 1909, and a comparison with those of 1908:—

	1908.	1909.	Increase or Decrease
Pulmonary Tuberculosis & Phthsis ...	53	64	+ 11
Tubercular Peritonitis and Tabes Mesenterica	13	12	— 1
Tubercular Meningitis	18	11	— 7
Cancer and Malignant Disease ...	36	58	+ 22
Prematurity and Injury at Birth ...	20	25	+ 5
Old Age	47	42	— 5
Syncope and Heart Disease (not specified)	54	46	— 8
Valvular Disease of Heart	20	34	+ 14
Cerebral Hæmorrhage, Embolism, Thrombosis and Apoplexy	41	34	— 7
Pneumonia	69	67	— 2
Bronchitis	44	38	— 6
Kidney and Bladder Disease... ...	18	18	...
Debility, Atrophy, Inanition, Marasmus	26	21	— 5
Measles	0	11	+ 11

+ Shows an increase over previous year.

— Shows a decrease over previous year.

NOTE—A glance at the above table will show that the number of deaths from Cancer, Heart Disease, Measles, Phthisis, and Prematurity, was greater than the previous year, but that in several other diseases or groups of diseases the number of deaths was less.

TABLE I.

Vital Statistics of whole District during 1909 and previous years.

CARLISLE URBAN DISTRICT.

YEAR. 1	Population estimated to Middle of each Year 2	BIRTHS.		TOTAL DEATHS REGISTERED IN THE DISTRICT.				TOTAL DEATHS IN PUBLIC INSTITUTIONS IN THE DISTRICT. 9	Deaths of Non-residents registered in Public Institutions in the District. 10	Deaths of Residents registered in Public Institutions beyond the District. 11	NETT DEATHS AT ALL AGES BELONGING TO THE DISTRICT	
				UNDER ONE YEAR OF AGE.		AT ALL AGES.						
		Number. 3	Rate. 4	Number. 5	Rate per 1,000 Births registered. 6	Number. 7	Rate. 8				Number. 12	Rate. 13
1899	44,202	1300	29·4	188	145	818	18·5	128	36	No information.	782	17·6
1900	44,838	1354	30·1	182	134	807	17·9	135	35		772	17·2
1901	45,478	1246	27·3	161	129	810	17·8	113	39		771	16·9
1902	46,078	1245	27·0	146	117	856	18·5	180	56	13	813	17·6
1903	46,500	1322	28·4	157	118	781	17·4	105	39	7	781	16·7
1904	47,350	1278	26·9	195	152	933	19·7	176	63	7	877	18·5
1905	47,920	1168	24·3	163	139	783	16·3	150	37	13	759	15·8
1906	48,425	1227	25·3	163	132	811	16·7	163	56	16	781	15·9
1907	49,400	1178	23·8	169	143	848	17·1	161	62	21	807	16·3
1908	50,047	1223	24·4	158	121	713	14·2	128	55	13	671	13·4
Averages for years 1899-1908.	47,023	1254	26·6	168	133	816	17·4	143	47	13	781	16·5
1909	50,675	1149	22·6	142	123	735	14·5	168	53	27	709	13·9

Area of District in acres (exclusive of area covered by water), 2 028.

Total population at all ages 45,478 Number of inhabited houses 9,464 Average number of persons per house 4·7	At Census of 1901.

The Union Workhouse is within the district.

TABLE II.

Vital Statistics of separate Localities in 1909 and previous years.

CARLISLE URBAN DISTRICT.

NAMES OF LOCALITIES.	1—WHOLE DISTRICT.				2—ST. MARY'S SUB-DISTRICT.				3—ST. CUTHBERT'S SUB-DISTRICT.			
YEAR.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each Year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
1899	44,202	1,300	782	188	25,404	694	461	105	18,798	606	321	83
1900	44,838	1,354	772	182	25,580	731	454	80	19,258	623	318	102
1901	45,478	1,246	771	161	25,756	679	452	100	19,722	567	319	61
1902	46,078	1,245	813	146	26,274	723	486	72	19,804	522	327	74
1903	46,500	1,322	781	157	26,534	738	460	97	19,966	584	321	60
1904	47,350	1,278	877	195	26,984	701	506	111	20,366	577	371	84
1905	47,920	1,168	759	163	27,277	648	452	81	20,643	520	307	82
1906	48,425	1,227	781	163	27,561	685	454	95	20,864	542	327	68
1907	49,400	1,178	807	169	28,207	653	459	84	21,193	525	348	85
1908	50,047	1,223	671	158	28,576	676	371	85	21,471	547	300	73
Averages of Years 1899 to 1908	47,023	1,254	781	168	26,815	692	455	91	20,208	561	325	77
1909	50,675	1,149	709	142	28,934	624	399	72	21,714	525	310	70

Causes of, and Ages at Death during Year 1909.

CAUSES OF DEATH.	DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING IN OR BEYOND THE DISTRICT.							DEATHS AT ALL AGES OF "RESIDENTS" BELONGING TO LOCALITIES, WHETHER OCCURRING IN OR BEYOND THE DISTRICT		TOTAL DEATHS WHETHER OF "RESIDENTS" OR "NON-RESIDENTS" IN PUBLIC INSTITUTIONS IN THE DISTRICT.
	All Ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards	St. Mary Sub-Dist	St. Cuthbert Sub-Dist.	
Small-pox	...	...	...	...	...	...	...	...	...	...
Measles	11	2	9	...	...	...	...	8	3	...
Scarlet Fever	5	...	5	...	...	...	...	5	...	6
Whooping Cough	8	5	2	1	...	...	...	5	3	...
Diphtheria includ. Membranous Croup	4	...	4	...	...	...	...	4	...	2
Croup	...	...	...	...	...	...	...	..	...	...
Fever { Typhus	1	...	...	...	..	1	...	..	1	1
Fever { Enteric	...	...	...	...	...	...	..	..	...	...
Fever { Other continued	...	...	...	...	...	...	...	...	...	...
Epidemic Influenza	7	...	...	...	...	4	3	5	2	...
Cholera	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...
Diarrhœa	...	...	...	...	...	...	...	...	...	...
Enteritis	25	23	3	...	...	...	1	17	8	...
Gastritis	...	...	...	...	...	...	...	...	...	...
Puerperal Fever	*6	1	...	...	...	5	...	6	...	4
Erysipelas	1	...	...	...	...	1	...	1	...	...
Phthisis (Pulmonary Tuberculosis) ...	64	2	4	5	13	37	3	38	26	7
Other Tuberculous Diseases	17	8	6	2	...	1	...	12	5	4
Cancer, Malignant Disease	58	...	...	..	...	35	23	36	22	18
Bronchitis	38	7	...	...	..	9	22	21	17	2
Pneumonia	67	7	12	2	4	27	15	42	25	4
Pleurisy	3	...	...	...	...	2	1	3	...	2
Other Diseases of Respiratory Organs...	10	1	1	2	1	3	2	4	6	1
Alcoholism, Cirrhosis of Liver ...	3	...	...	...	..	2	1	2	1	1
Venereal Diseases	...	...	...	...	...	...	...	...	...	...
Premature Birth	25	25	...	...	...	...	...	11	14	1
Diseases and Accidents of Parturition	3	3	...	...	...	...	...	...	3	...
Heart Diseases	92	3	1	2	7	51	28	45	47	29
Accidents	19	3	4	...	1	10	1	10	9	11
Suicides	2	...	...	...	...	1	1	1	1	...
Tuberculous Meningitis	11	4	3	3	...	1	...	4	7	...
All other Causes	229	50	5	5	7	74	88	119	110	77
All Causes	709	142	59	22	33	264	189	399	310	170

* One death only occurred from the above disease. The other five were as follows—Septicæmia 3, Pyæmia 2, which were inserted in the wrong column.

Deaths Registered from all Causes during the year 1909.

CAUSE OF DEATH.	AGES. 0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	TOTALS.
I.—GENERAL DISEASES.												
Smallpox Vaccinated	...	...	...	...	...	...	...	...	...	..	...	...
Not Vaccinated	...	...	...	...	...	...	...	...	...	...	...	...
Doubtful	...	...	...	...	...	...	...	...	...	...	...	...
Cowpox—Effects of Vaccination ...	...	..	...	...	...	...	...	...	..	...	...	..
Chicken-pox	...	...	..	...	...	...	...	...	...	...	...	...
Measles (Morbilli)	2	9	..	...	...	...	...	..	...	...	...	11
Epidemic Rose Rash, German Measles	...	..	...	...	..	...	...	...	...	...	...	..
Scarlet Fever	...	6	...	...	...	...	...	...	...	...	...	6
Typhus Fever	...	...	...	...	...	1	...	...	...	...	...	1
Plague	...	...	...	.	...	...	...	...	...	...	...	...
Relapsing Fever	...	...	...	...	...	..	...	...	...	...	...	...
Influenza	...	...	...	...	2	1	1	...	2	1	...	7
Whooping Cough	5	2	1	...	...	...	...	...	...	...	...	8
Mumps	...	..	...	...	...	...	...	..	...	...	...	...
Diphtheria, Membranous Croup ...	...	4	...	...	..	...	...	...	...	...	...	4
Cerebro Spinal Fever	...	...	...	..	...	...	...	...	...	...	...	...
Simple Continued Fever	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	...	...	...	..	...	...	..	...	...	...	...	..
Asiatic Cholera	...	...	...	...	...	...	...	...	...	...	..	...
Epidemic Diarrhœa, Epid. (or Zym.) Enteritis	...	...	...	...	...	...	..	...	...	...	..	...
Diarrhœa—Choleraic Diarrhœa ...	...	...	...	...	...	..	...	...	...	...	...	...
Dysentery	...	...	...	...	...	..	...	..	...	...	..	...
Malarial Fever	...	...	...	...	...	..	...	...	...	...	...	...

Hydrophobia	...	...	...	...	...	...	...	...	...	...	...	...
Glanders, Farcy	...	...	...	...	...	...	...	...	...	...	...	...
Anthrax, Splenic Fever	...	...	...	...	...	...	...	...	...	...	...	...
Tetanus	...	...	...	...	...	...	...	...	...	...	...	...
Syphilis	...	...	...	...	...	...	...	...	...	...	...	...
Gonorrhœa, Stricture of Urethra	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Septicæmia—Sapræmia	...	...	...	...	1	...	...	...	...	...	...	1
Puerperal Pyæmia	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Phlegmasia Dolens	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever	...	...	...	...	...	...	...	...	...	...	...	...
Infective Endocarditis	...	...	...	...	...	...	...	...	...	...	...	...
Pneumonia Lobar	1	...	1	2	...	6	2	1	...	...	...	13
Broncho	5	11	1	1	1	1	...	4	1	1	...	26
Epidemic	...	...	...	...	...	...	...	...	...	...	...	...
Not Defined	1	2	...	1	1	3	5	2	6	6	1	28
Erysipelas	...	...	...	...	...	...	...	1	...	...	...	1
Septicæmia (not Puerperal)	...	...	...	...	2	...	2	...	...	...	...	4
Pyæmia (not Puerperal)	1	...	...	...	...	1	...	...	...	...	...	2
Phlegmon, Carbuncle (not Anthrax)	...	...	...	...	...	...	...	...	...	...	...	...
Phagedænia	...	...	...	...	...	...	...	...	...	...	...	...
Cellulitis	...	...	...	...	1	...	...	...	...	...	...	1
Other Septic Diseases	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculous Phthisis (Pulm. Tuberculosis)	1	3	2	5	9	6	6	...	1	...	...	33
Phthisis	1	2	3	8	11	1	2	2	1	...	...	31
Tuberculous Meningitis	4	3	3	...	...	1	...	...	...	...	...	11
Hydrocephalus	1	...	...	...	...	...	...	...	...	...	...	1
Tuberculous Peritonitis	...	1	2	...	...	...	...	...	...	...	...	3
Tabes Mesenterica	7	3	...	...	...	...	...	...	...	...	...	10
Lupus	...	...	...	...	...	...	...	...	...	...	...	...
Tubercle of other Organs	...	1	1	1	1	...	...	...	...	...	...	4
General Tuberculosis	...	1	...	...	...	...	...	...	...	...	...	1
Scrofula	...	...	...	...	...	...	...	...	...	...	...	...
Parasitic Diseases	...	...	...	...	...	...	...	...	...	...	...	...

Deaths Registered from all Causes during the year 1909.

CAUSE OF DEATH.	AGES.											TOTALS.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	
I.—GENERAL DISEASES—*continued.*												
Starvation	...	...	...	...	...	...	...	..	...	...	...	...
Scurvy	...	..	...	..	...	...	...	...	...	...	...	...
Alcoholism, Delirium Tremens	...	...	...	...	...	1	...	...	1	...	...	2
Opium, Morphia Habits	...	...	..	...	...	...	...	...	...	...	...	...
Ptomaine Poisoning	...	...	...	...	...	...	...	...	...	...	...	...
Industrial Poisoning by Lead	..	...	.	...	...	...	...	...	...	...	...	...
Industrial Poisoning by Phosphorus	...	...	...	...	...	...	...	...	.	..	..	...
Industrial Poisoning by Arsenic and other Metals	...	...	...	...	...	...	..	...	...	..	..	..
Rheumatic Fever, Acute Rheumatism	..	...	...	...	...	...	...	..	...	...	...	...
Rheumatism of Heart	...	...	...	...	...	..	...	...	..	...	...	...
Chronic Rheumatism	...	...	..	...	1	...	...	...	1	...	...	2
Rheumatic Arthritis, Rheumatic Gout	...	...	...	...	...	...	...	...	1	...	...	1
Gout	...	...	...	...	..	...	...	...	...	...	...	...
Carcinoma	...	...	...	...	2	5	5	8	9	1	...	30
Sarcoma	...	...	...	...	...	...	...	1	...	...	...	1
Malignant Disease, Cancer	...	...	...	...	...	2	7	11	10	5	...	35
Rickets	...	...	...	...	...	...	...	...	...	...	..	...
Purpura	...	...	...	...	...	..	...	...	...	..	...	...
Hæmophilia Hæmorrhagic Diathesis	...	...	...	...	...	...	..	...	...	...	...	...
Anæmia, Leucocythæmia	...	...	...	...	1	1	2	...	...	1	...	5
Diabetes Mellitus	...	..	...	...	...	...	...	...	...	1	...	1
Premature Birth	25	...	..	...	...	...	...	...	..	...	..	25
Congenital Defects	5	...	...	...	...	...	...	...	...	...	...	5

Injury at Birth ..	...	...	...	...	...	...	...	...	...	...	...	...
Atelectasis	3	...	...	...	...	...	...	...	...	...	...	3
Want of Breast Milk	1	...	...	...	...	...	...	...	...	...	...	1
Teething	1	1	...	...	...	...	...	...	...	...	...	2
Old Age	...	...	...	...	...	...	...	...	13	24	8	45
II. LOCAL DISEASES.												
1.—Diseases of Nervous System.												
Meningitis, Inflammation of Brain	3	1	...	1	...	...	...	...	...	...	...	5
Softening of Brain	...	...	...	...	...	...	...	...	2	1	...	3
General Paralysis of Insane	...	...	...	...	...	1	...	1	1	...	...	3
Insanity (not Puerperal)	...	...	...	...	1	...	...	...	...	...	...	1
Chorea	...	...	...	1	...	...	...	...	...	...	...	1
Epilepsy	...	...	...	...	1	...	1	1	2	...	...	5
Convulsions	8	...	...	...	...	...	...	...	...	...	...	8
Laryngismus Stridulus	...	...	...	...	...	...	...	...	...	...	...	...
Locomotor Ataxy	...	...	...	...	...	...	...	...	1	...	...	1
Paraplegia and Disease of Cord	...	...	...	1	2	1	1	1	1	...	...	7
Neuritis Periph, Poly-Neuritis	...	...	...	...	...	...	...	...	...	...	...	...
Brain Tumour (not specific)	...	...	...	...	...	...	...	...	...	...	...	...
Nervous System, other Diseases	1	...	...	1	1	...	...	...	...	...	...	3
2.—Diseases of Organs of Special Sense.												
Otitis, Mastoid Disease	...	...	1	1	...	...	...	...	...	...	...	2
Epistaxis, Nose Disease	...	...	...	...	...	...	...	...	...	...	...	...
Ophthalmia, Eye Disease	...	...	...	...	...	...	...	...	...	...	...	...
3.—Diseases of Heart.												
Valve Disease, Endocarditis (not Infective)	...	...	...	7	2	4	6	7	5	2	...	33
Pericarditis	...	...	...	...	...	...	...	...	1	...	...	1
Hypertrophy of Heart	...	...	...	...	...	...	...	...	...	...	...	...
Angina Pectoris	...	...	...	...	...	...	...	...	1	...	...	1
Dilatation of Heart	...	...	...	...	...	...	1	1	1	...	...	3
Fatty Degeneration of Heart	...	...	...	...	1	...	...	1	1	2	...	5
Syncope, Heart Disease (not specified)	3	1	2	1	2	2	6	15	11	3	1	47

Deaths Registered from all Causes during the year 1909.

CAUSE OF DEATH.	AGES.											TOTALS.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	
II.—Local Diseases—*continued.*												
4.—Diseases of Blood Vessels.												
Cerebral Hæmorrhage, Embolism, Thrombosis	1	...	...	...	...	2	4	9	8	5	...	29
Apoplexy, Hemiplegia	...	...	...	...	..	...	...	4	2	1	...	7
Aneurysm	...	...	.	...	...	...	...	...	1	...	..	1
Senile Gangrene	...	...	...	...	...	...	...	...	3	1	...	4
Embolism, Thrombosis (not Cerebral)	...		...	...	...	...	...	...	...	...	..	..
Phlebitis	...	...	...	...	...	...	...	...	...	...	...	..
Varicose Veins	...	..	...	...	...	...	...	...	..	1	...	1
Blood Vessels, other Diseases... ...	...	...	...	...	...	...	..	1	...	...	...	1
5.—Diseases of Respiratory Organs.												
Laryngitis	...	...	2	1	...	...	...	...	...	...	...	3
Membranous Laryngitis (not Diphtheritic)	...	...	...	...	...	...	...	...	...	...	...	...
Croup (not Spasmod. or Membr.) ...	...	...	...	..	...	...	..	...	...	...	...	..
Larynx, other Diseases (not specified)	...	...	...	...	...	...	...	...	...	...	..	...
Bronchitis	7	...	...	...	1	...	...	8	9	13	...	38
Emphysema, Asthma	1	...	...	...	...	...	...	2	2	...	...	5
Pleurisy	..	...	...	..	1	...	1	...	1	...	...	3
Fibroid Disease of Lung	...	...	...	...	...	..	...	...	...	...	...	...
Respiratory Diseases, other ., ...	...	1	...	...	...	1	...	...	...	...	...	2

6.—*Diseases of Digestive System.*												
Tonsillitis, Quinsy	...	...	...	...	...	...	...	...	...	...	...	...
Mouth, Pharynx, Disease	...	...	...	...	..	..	...	...	...	...	...	..
Gastric Ulcer	...	...	...	...	2	2	...	...	..	...	...	4
Gastric Catarrh	1	...	...	...	...	..	1	...	...	1	1	4
Stomach, other Diseases (not Malignant)	...	...	..	...	...	1	...	...	..	..	...	1
Enteritis (not Epidemic)	8	...	...	...	...	..	...	...	...	...	...	8
Gastro-Enteritis	13	3	..	...	..	...	...	...	...	1	...	17
Appendicitis, Perityphlitis	...	1	...	...	1	...	1	1	1	...	...	5
Hernia	...	..	..	...	...	...	..	2	2	...	...	4
Intestinal Obstruction	..	...	...	...	...	...	...	...	1	...	..	1
Other Diseases of Intestine	2	1	...	...	1	...	1	1	1	...	...	7
Peritonitis (not Puerperal)	...	...	...	...	1	...	...	...	...	...	...	1
Cirrhosis of Liver	...	..	..	...	1	1	...	..	...	...	..	2
Liver and Gall Bladder, other Diseases	1	...	2	..	...	...	..	...	2	1	1	7
Digestive System, other Diseases ...	1	...	...	...	...	...	...	...	...	...	...	1
7.—*Lymphatic Diseases.*												
Spleen Disease	..	...	...	...	...	..	...	...	...	...	...	...
Lymph. System, other Diseases ...	...	...	...	...	...	1	...	1	.	...	...	2
Thyroid, Body Disease	..	...	...	...	...	..	...	...	...	...	...	...
Supra Renal Capsules Disease ..	...	...	...	...	...	...	...	...	...	...	..	...
8.—*Diseases of Urinary System.*												
Nephritis, Acute	...	...	1	1	1	1	2	1	..	...	...	7
Chronic Bright's Disease, Albuminuria	...	...	...	...	...	1	1	2	2	...	...	6
Calculus (not Biliary)	...	...	...	...	...	...	...	...	...	...	...	...
Bladder and Prostate Disease	...	...	...	...	...	...	1	1	2	1	1	6
Urinary System, other Diseases ...	...	...	...	1	...	...	1	1	...	...	...	3
9.—*Diseases of Generative System.*												
Ovarian Tumour (not Malig.)	...	...	...	...	...	...	1	...	...	...	...	1
Other Diseases of Ovary	...	...	...	...	...	...	...	...	...	...	...	...
Uterine Tumour (not Malig.)	...	...	.	..	..	...	...	...	...	...	...	...
Other Diseases of Uterus and Vagina	...	...	...	...	...	...	...	...	..	...	...	...
Disorders of Menstruation	...	...	...	...	...	...	...	...	...	...	...	...
Generative and Mam. Orgs., other Diseases	...	..	...	...	..	...	...	...	...	...	...	...

Deaths Registered from all Causes during the year 1909.

CAUSE OF DEATH.	AGES 0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	TOTALS.
II.—LOCAL DISEASES—*continued.*												
10.—Accidents of Childbirth.												
Abortion, Miscarriage	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Mania	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Convulsions	...	...	...	...	...	...	..	...	...	...	...	...
Placenta Prævia, Flooding	...	...	...	..	...	...	...	...	...	..	...	...
Other Accidents of Pregnancy and Childbirth	2	...	...	...	1	...	...	...	..	...	...	3
11.—Diseases of Bones and Joints.												
Caries, Necrosis	..	...	1	...	...	...	...	...	...	...	...	1
Arthritis, Periostitis	...	...	...	...	...	...	1	1	...	...	..	2
Other Diseases of Locomotor System...	...	...	...	...	...	...	..	...	...	...	...	...
12.—Skin Diseases.												
Ulcer, Bedsore	..	...	...	...	...	...	...	...	...	...	..	...
Eczema	1	...	...	...	...	...	...	...	...	...	...	1
Pemphigus	1	...	...	...	...	...	...	...	...	...	...	1
Skin Diseases, other	2	...	...	...	...	...	...	1	...	...	...	3
III.—DEATHS FROM VIOLENCE.												
1.—Accident or Negligence.												
Fractures and Contusions	...	...	...	1	1	2	1	..	...	..	1	6
Gunshot Wounds	...	...	...	..	...	...	...	...	...	...	...	...
Cut, Stab	..	...	...	...	...	...	...	...	...	...	...	...
Burn, Scald	...	5	...	1	...	...	...	...	...	..	...	6

Poison	...	...	...	...	...	...	...	...	...	...	...	...
Drowning	...	...	...	...	...	...	...	...	...	...	...	...
Suffocation	3	...	...	...	...	...	5	...	...	...	...	8
Otherwise	...	...	...	...	...	...	...	2	...	...	...	2
2.—Homicide.												
Manslaughter	...	...	...	...	...	...	...	...	...	...	...	...
Murder	...	...	...	...	...	...	...	...	...	...	...	...
3.—Suicide.												
Gunshot Wounds	...	...	...	...	...	...	...	...	...	...	...	...
Cut, Stab	...	...	...	...	...	...	...	...	1	...	...	1
Poison	...	...	...	...	1	...	...	...	...	...	...	1
Drowning	...	...	...	...	...	...	...	...	...	...	...	...
Hanging	...	...	...	1	...	...	...	...	...	...	...	1
Otherwise	...	...	...	...	...	...	...	...	...	...	...	...
4—Execution												
Hanging	...	...	...	...	...	...	...	...	...	...	...	...
IV.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.												
Dropsy	...	...	...	...	...	...	...	...	...	...	...	...
Debility, Atrophy, Inanition, Marasmus	21	1	...	...	...	...	...	...	...	...	...	22
Mortification	...	...	...	...	...	...	...	...	...	...	...	...
Tumour	...	...	...	...	...	1	...	...	...	...	...	1
Abscess	...	...		...	1	...	...	...	...	...	...	1
Hæmorrhage	...	...	...	...	...	...	...	...	...	...	...	...
Sudden Death (cause not ascertained)	...	...	...	...	...	...	...	...	...	...	...	...
Causes not Specified or Ill-defined	...	...	...	...	...	...	...	...	...	...	...	...

Table showing comparative rates from the principal causes of

NAME OF TOWN.	Population.	Birth Rate.	Death Rate. (After exclusion of Non-Residents.)	Infantile Mortality Rate.
Accrington	46,500	20·34	14·60	123·0
Ashton-under-Lyne	46,225	23·1	18·0*	164·6
Aston Manor	85,257	23·9	13·9	120·0
Barnsley	46,500	34·70	17·36	218·0
Barrow-in-Furness	66,951	24·71	11·63	80·3
Bath	50,000	17·2	12·6*	82·0
Blackpool	61,450	16·70	13·86*	103·31
Bootle	71,500	29·9	16·0	118·0
Burton-upon-Trent	53,500	22·6	13·3*	100·0
Bury	59,234	20·61	16·29	129·0
Cheltenham	51,500	18·4	15·2	119·0
Coventry	93,500	27·8	13·7*	96·8
Crewe	48,584	23·05	11·9	104·0
Darlington	52,000	29·05	13·7	101·0
Eastbourne	52,000	16·8	10·6*	81·0
Edmonton	61,164	29·48	11·22*	103·16
Exeter	48,500	23·0	14·0*	101·3
Gillingham	53,485	27·1	9·7	68·9
Handsworth	71,935	20·1	11·2*	83·0
Hanley	68,831	31·3	18·4	149·0
Hornsey	92,389	16·3	9·7*	57·0
Ilford	74,362	22·14	8·8*	68·0
Ipswich	74,889	23·9	12·8*	89·0
Kings Norton	81,632	23·13	10·92*	73·0
Lancaster	44,270	21·86	13·07	104·0
Lincoln	54,745	23·56	13·84*	84·5
Newport	78,336	32·06	15·10*	113·2
Northampton	94,500	20·71	14·23*	109·9
Oxford	52,306	20·46	12·95*	75·7
Reading	84,085	20·74	11·84*	95·2
Rotherham	65,000	31·78	12·94	116·0
Smethwick	70,300	28·1	13·4*	116·0
Stockton-on-Tees	53,660	26·48	14·03	121·0
Tynemouth	55,808	33·5	17·1	127·0
Wakefield	43,936	22·0	13·7	106·0
Wallasey	73,000	25·1	13·0*	80·0
Warrington	73,000	30·9	16·9*	129·0
West Bromwich	70,000	30·5	14·7	122·0
Wigan	93,263	30·67	18·28	169·0
Wimbledon	56,944	20·7	8·9	77·0
Worcester	49,690	23·08	14·20	100·2
CITY OF CARLISLE...	**50,675**	**22·6**	**13·9**	**123·6**

* Corrected according to the method of the Registrar General.

death in Carlisle and a number of other Towns.

Zymotic Death Rate.	Respiratory Diseases, Death Rate (other than Phthisis).	Phthisis, Death Rate.	Other Tubercular Diseases, Death Rate.	Malignant Diseases, Death Rate.	Average Death Rate for 10 Years.
0·75	3·22	0·73	0·38	0·96	14·75
1·7	3·8	1·6	0·02	0·6	20·8
1·7	not stated	1·1	0·25	not stated	14·9
1·78	3·73	0·94	0·75	0·79	19·27
0·52	1·89	1·21	0·3	0·8	14·1
0·60	not stated	0·9	0·26	1·5	15·42
0·99	2·28	0·73	0·28	0·96	13·04
2·1	3·4	1·1	0·29	0·88	18·7
0·45	1·79	1·21	0·46	0·74	not stated
0·98	3·85	1·19	0·33	0·96	17·07
1·51	2·19	0·68	0·31	1·37	14·1
1·6	2·41	1·03	0·39	0·69	15·2
0·41	2·79	0·6	0·36	0·84	14·1
0·88	2·57	0·86	0·61	0·63	15·9
0·5	1·0	1·1	0·2	0·9	11·3
1·29	1·83	0·70	0·39	0·95	17·25
0·67	2·92	1·40	0·47	1·34	16·36
0·4	1·1	0·7	not stated	0·6	11·5
1·05	1·66	0·58	0·34	0·70	11·5
2·5	not stated	0·9	not stated	not stated	19·1
0·4	1·3	0·61	0·28	0·81	8·5
0·6	1·4	0·59	0·3	0·76	10·05
0·84	1·97	1·12	0·53	1·31	15·8
1·0	1·9	0·6	0·2	0·9	11·0
1·12	2·66	0·88	0·38	0·67	13·97
1·18	1·9	1·15	0·34	1·13	16·0
1·58	2·73	1·04	0·31	0·81	16·5
0·88	2·43	1·25	0·40	1·04	13·4
0·30	1·74	1·2	0·2	1·6	13·3
0·92	1·72	1·03	0·37	0·97	13·40
1·07	2·54	0·69	0·34	0·67	16·31
2·23	0·28	0·82	0·38	0·78	14·3
1·24	2·12	0·83	1·13	0·78	17·9
1·09	2·9	1·14	0·7	0·5	19·0
0·38	2.66	1·22	0·60	0·84	not stated
0·7	2·2	0·6	0·4	1·0	14·17
2·9	3·45	1·15	0·64	0·63	18·5
1·8	not stated	not stated	not stated	not stated	17·3
2·47	4·90	0·72	0·58	0·51	20·02
0·72	1·35	0·84	0·05	0·68	10·4
0·68	not stated	1·08	0·44	not stated	16·8
0·5	**2·3**	**1.26**	**0·3**	**1·1**	**16·5**

INFANTILE MORTALITY.

This term is used as an interpretation of the mortality amongst infants under the age of 12 months, and the rate is calculated upon the number of deaths of such infants per 1,000 born during the same period.

The number of deaths amongst infants under one year of age during the past year was 142, giving an Infantile Mortality Rate of 123.6 per 1,000.

The rate for the whole of England and Wales was 109 per 1,000, and for the 76 great towns 118 per 1,000, and for the 142 smaller towns 111 per 1,000, for the whole of England and Wales, less the 218 great and smaller towns, the rate was 98 per 1,000.

The subjoined table, giving the rates from the year 1884 to 1909, shows that the Infantile Mortality rate was slightly lower during 1909 than during 1908, but a study of the figures shows that there has not been any fall of a permanent nature, such for example as has been observed in the rates for deaths at all ages.

The force of this condition is of serious moment, and is of considerably greater significance when taken in conjunction with the birth-rates for the same periods, for whilst generally a high Infantile Mortality Rate may be and usually is associated with a high birth-rate, we are here faced with the disturbing fact that although we have what may be regarded as a favourable general death-rate, the Infantile Mortality Rate remains practically what it did 25 years ago, whilst the birth-rate has fallen 12.4 per 1,000 during the same period. This state of affairs is very disquieting, and causes one to reflect upon the ultimate result of this serious leakage of infant life.

The study of the Infantile Mortality problem is one of the most pressing subjects of the present time, and in addition to the vigorous efforts put forth by many Health Authorities, innumerable learned Societies, Charitable Organisations, and philanthropic individuals are rendering help of every kind with a view to reducing the overwhelming loss of infant life which takes place every year in this country.

The rates of Infantile Mortality are subject to wide fluctuation, and this fluctuation bears some relationship to the variations of summer temperature and rainfall, for generally speaking, a wet cold summer is associated with a reduced Infantile Mortality Rate, the opposite effect being observed with a hot dry season, viz., *a High Infantile Mortality Rate.*

But the question of the *cause* of Infantile Mortality does not depend solely upon the variation of the climate in the summer months; the causes may be said to be perennial, and there are many special agencies at work other than those with which Health Authorities are directly concerned, which are prejudicial to infantile existence, and the more we see of this mortality the more confident are we that defects with regard to the broader measures of everyday life are the greatest contributory factors towards its causation.

This can scarcely be disputed when we analyse carefully these well-known defects, including as they do:—

(a) Poverty, ignorance, negligence, and alcoholism in the parent.

(b) The effects upon the child of prematurity, immaturity, and other ante-natal causes, combined with the injurious conditions incidental to childbirth, and the added risk oftentimes due to unskilled midwifery.

(c) Feeding with impure and unsuitable food stuffs, and the contamination of infants food by dust, flies, and other filth, combined with—

(d) Overcrowding of the homes of those amongst whom Infantile Mortality secures its greatest number of victims, and added to this the possibility of an unhealthy condition of the property and sanitary conveniences.

With such a prolixity of defective conditions at work the exhibition of the appropriate remedies is a gigantic undertaking, but whatever steps are taken to lessen the evil they should include reforms directed towards:—

(1) Visiting and educating the lower classes and helping where necessary.

(2) Encouraging the mothers to feed their offspring naturally, pointing out the beneficial effects of so doing, as against the detrimental effect so often observed amongst artificially fed infants.

(3) Attention to the physical condition of the mother during the later stages of pregnancy, and the observation of proper care during confinement and the period immediately following.

(4) Better sanitary environment, including the removal of Slum Areas, Overcrowding, and Houses dangerous to health.

(5) Establishment of Milk Depôts where deemed necessary.

(6) Restriction of the sale of patent foods except those certified by Government Analyses.

(7) The question of the undesirability of insurance of infants under 12 months.

(8) Supervision by Local Authority over houses where infants are to be nursed during the absence of the mother, and especially in cases where infants are nursed for monetary reward.

(9) More stringent measures and closer supervision respecting Dairies, Cowsheds, and Milkshops, and every process connected with the collection, sale, and storage of milk, and more particularly than has hitherto been the case at country farms.

(10) The teaching of domestic hygiene in the upper standards of Elementary Schools.

(11) The adoption of the earlier Notification of Births' Act.

(12) AND MOST IMPORTANT, THE APPOINTMENT OF QUALIFIED WOMEN SPECIALLY TRAINED IN PUBLIC HEALTH, AND THE HYGIENE OF INFANCY AS HEALTH VISITORS.

It must be borne in mind that two serious conditions exist in this City, viz.,

(a) A high Infantile Mortality Rate.
(b) A Low Birth-rate.

St. Mary's Sub-District.

INFANTILE MORTALITY DURING THE YEAR 1909.

Deaths from stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.		Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 month.	1–2 Months.	2–3 Months.	3–4 Months.	4–5 Months.	5–6 Months.	6–7 Months.	7–8 Months.	8–9 Months.	9–10 Months.	10–11 Months.	11–12 Months.	Total Deaths under One Year.
All Causes.	Certified	17	2	1	3	23	10	7	6	4	5	4	2	2	4	3	2	72
	Uncertified	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Common Infectious Diseases.	Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	2
	Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Diphtheria, including Membranous Croup	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Whooping Cough	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	2
Diarrhœal Diseases.	Diarrhœa, all forms	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Enteritis, Muco-enteritis Gastro-enteritis	...	...	...	...	...	3	1	...	1	...	1	1	1	2	2	...	12
	Gastritis, Gastro-intestinal Catarrh	...	...	...	1	1	...	1	2	1	...	...	...	...	...	...	...	5
Wasting Diseases.	Premature Birth	10	...	...	1	11	...	...	...	...	...	...	...	...	...	...	...	11
	Congenital Defects	1	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	2
	Injury at Birth	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Want of Breast-milk Starvation	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Atrophy, Debility, Marasmus	5	...	...	...	5	2	1	1	1	...	1	...	...	...	...	...	11
Tuberculous Diseases.	Tuberculous Meningitis	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	2
	Tuberculous Peritonitis: Tabes Mesenterica	...	...	...	...	...	2	1	1	...	...	1	...	...	...	...	1	6
	Other Tuberculous Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Causes.	Erysipelas	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Syphilis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Rickets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Meningitis (*not Tuberculous*)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Convulsions	...	1	...	1	2	...	1	1	...	1	...	...	...	1	...	...	6
	Bronchitis	...	...	...	...	...	1	...	...	...	2	...	...	...	...	...	...	3
	Laryngitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Pneumonia	...	...	...	...	...	...	1	...	...	1	...	...	1	1	...	1	5
	Suffocation, overlying	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Causes	1	1	1	...	3	1	...	...	...	1	...	...	...	...	1	...	5
		17	2	1	3	23	10	7	6	4	5	4	2	2	4	3	2	72

District (or Sub-Division) of St. Mary's

Births in the year	Legitimate, 580. Illegitimate, 44.	Deaths in the year of	Legitimate Infants, 63. Illegitimate „ 9.

Population—Estimated to middle of 1909—28,934.

Deaths from all Causes at all Ages—399.

St. Cuthbert's Sub-District.

INFANTILE MORTALITY DURING THE YEAR 1909.

Deaths from stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.		Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months	11-12 Months	Total Deaths under One Year.
All Causes	Certified ...	20	4	4	4	32	9	4	6	2	1	4	3	2	2	4	1	70
	Uncertified . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Common Infectious Diseases.	Small-pox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Diphtheria, including Membranous Croup	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Whooping Cough ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2	...	3
Diarrhœal Diseases.	Diarrhœa, all forms...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Enteritis, Muco-enteritis Gastro-enteritis	...	...	...	1	1	1	1	1	...	...	1	1	...	...	...	...	6
	Gastritis, Gastro-intestinal Catarrh	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Wasting Diseases.	Premature Birth ...	8	3	1	1	13	1	...	...	...	...	...	...	...	...	...	...	14
	Congenital Defects...	5	...	1	...	6	...	...	...	...	...	...	...	...	...	...	...	6
	Injury at Birth ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Want of Breastmilk Starvation	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
	Atrophy, Debility, Marasmus	2	1	...	1	4	3	...	2	...	...	...	...	...	...	...	...	9
Tuberculous Diseases.	Tuberculous Meningitis	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	2
	Tuberculous Peritonitis: Tabes Mesenterica	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
	Other Tuberculous Diseases	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	2
Other Causes.	Erysipelas ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Syphilis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Rickets ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Meningitis (*not Tuberculous*)	...	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...	3
	Convulsions...	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2
	Bronchitis ...	...	...	...	...	...	1	1	1	1	...	...	...	...	...	1	...	5
	Laryngitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Pneumonia ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	2
	Suffocation, overlying	...	...	1	...	1	1	...	...	...	...	1	...	...	...	...	...	3
	Other Causes ...	3	...	1	1	5	1	...	...	1	...	...	...	1	1	1	...	10
		20	4	4	4	32	9	4	6	2	1	4	3	2	2	4	1	70

District (or sub-division) of St. Cuthbert.

Births in the year { Legitimate, 481. Illegitimate, 44. Deaths in the year of { Legitimate Infants, 61. Illegitimate „ 9.

Population—Estimated to middle of 1909—21,741.

Deaths from **all Causes at all Ages—310.**

Population, births, birth-rate, and infantile mortality rates for a series of years, 1884-1909:—

Year.	Population.	No. of Births.	Rate per 1000.	Infantile Death-Rate per 1000 births.
1884	37,285	1303	35.0	158
1885	37,881	1285	34.0	164
1886	38,402	1262	33.0	146
1887	38,793	1214	31.3	141
1888	39,027	1307	33.5	129
1889	39,944	1224	30.6	142
1890	40,500	1215	30.0	150
1891	39,200	1207	30.8	137
1892	39,750	1213	30.5	123
1893	40,150	1389	34.5	178
1894	41,022	1315	32.0	133
1895	41,658	1311	31.4	142
1896	42,294	1246	29.6	137
1897	42,930	1324	30.8	134
1898	43,566	1311	30.0	183
1899	44,202	1300	29.4	145
1900	44,838	1354	30.1	134
1901	45,478	1246	27.3	129
1902	46,078	1245	27.0	117
1903	46,500	1322	28.4	118
1904	47,350	1278	26.7	152
1905	47,920	1168	24.3	139
1906	48,425	1227	25.3	132
1907	49,400	1178	23.8	143
1908	50,047	1223	24.4	129
1909	50,675	1149	22.6	123.6

The 142 deaths of infants under one year of age are recorded under the following headings, arranged in order of their frequency:—

Premature Birth	25
Atrophy, Debility, Inanition, Marasmus ...	20
Enteritis, Muco-Enteritis, and Gastro-Enteritis	18
Congenital Defects	9
Convulsions	8
Bronchitis	8
Pneumonia	7
Tabes Mesenterica, Tuberculous Peritonitis	7
Gastritis, Gastro-intestinal Catarrh ...	6
Whooping Cough	5
Tuberculous Meningitis	4
Meningitis (not tuberculous)	3
Cerebral Thrombosis	1
Hydrocephalus	1
*Suffocation (overlying)	3
Other Tuberculous Diseases	2
Measles	2
Want of Breast Milk	1
Eczema	1
Sclerema Neonatorum	1
Intestinal Hæmorrhage	1
Acute Anterior Polio-myelitis	1
Pemphiqus	1
Abscesses Pyœmia	1
and the following ill defined cases, viz.:—	
Sclerema	1
Dentition	1
Icterus Neonatorum	1
Delay at Birth of after coming head ...	1
Probably Cardiac Failure	1
Prolonged Birth with Presentation ...	1
Total ...	142

* See Inquests.

INQUESTS.

The City Coroner held 43 inquests during the past year. Of this number 34 were held upon the bodies of those who had been resident in the City, and 9 upon the bodies of persons who had resided in other districts of the county, but who died within the City.

14 of the inquests were held upon the bodies of children under five years, 5 of these being children under one year.

The finding of the Jury in these 14 cases respectively was:—

	Cause.	Age.
1	Choked by a coin	2 years
2*	Shock, the result of burns	4 years
3	Accidentally burned	1 yr. 9 m.
4	Accidentally scalded	3 years
5	Do.	1 year
6	Do.	2 years
7	Accidentally burned	4 years
8	Broncho Pneumonia	1 year
9	Choked by a piece of bread... ...	6 months
10	Overlaid	19 days
11	Natural Causes, Convulsions ...	3 months
12	Overlaid	5 weeks
13	Phthisis	8 months
14	Accidentally burned	1 yr. 6 m.

* Resided at Hodgson's Lane, Stanwix.

UNCERTIFIED DEATHS.

During the past year 19 deaths were registered in which no certificate was given by a medical man, and in which no Coroner's inquest was held. The deaths being registered as follows: —

No.	Sex.	Age.	Cause of Death as Registered.
1	Male ...	79 years ...	Senile Decay
2	Female ...	66 years ...	Heart Failure
3	Male ...	3 days ...	Inanition
4	Male ...	84 years ...	Cerebral Hæmorrhage
5	Female ..	90 years ...	Fracture of Femur Bronchitis Syncope
6	Female ...	57 years ...	Fatty Degeneration of Heart
7	Female ...	16 months ...	Measles
8	Female ..	61 years ...	Heart Disease
9	Male ...	64 years ...	Apoplexy
10	Female ...	54 years ...	Epithelioma of Scrotum, Exhaustion
11	Female ...	73 years ...	Heart Failure
12	Female ...	82 years ...	Senile Decay
13	Male ...	78 years ...	Heart Failure
14	Female ...	5 months ..	Convulsions
15	Male ...	48 years ..	Heart Failure
16	Female ...	30 years ...	Heart Failure
17	Male ...	86 years ...	Heart Failure
18	Female ...	2 months ...	Convulsions
19	Male ...	17 months ..	Pneumonia

LIST SHOWING NUMBER OF DEATHS OF INFANTS UNDER 1 YEAR, WITH OCCUPATION OF PARENTS.

Total Number	Legitimate	124	142
„ „	Illegitimate	18	
St. Mary's Sub-Registration District...	Legitimate	63	72
„ „ „	Illegitmate	9	
St. Cuthbert's „ „	Legitimate	61	70
„ „ „	Illegitimate	9	

LEGITIMATE.

Occupation of Father.	Numbers.
Labourers	36
Railway Employees (including Firemen, Engine Drivers, Guards, Cleaners)	18
Painters, Plumbers, Joiners	14
Grooms, Coachmen, Cab Drivers, and Carters ...	7
Iron Workers	7
Tailors	4
Grocers (Assistants and Porters)	4
General Dealers, Showmen, and Hawkers ...	4
Clerks	4
Butchers	3
Blacksmiths	3
Cattle Drovers	3
Soldiers	2
Piano Tuner	1
Vocalist	1
Electrician	1
School Caretaker	1
Lithographer	1
Coal Agent	1
Coal Miner	1
Chimney Sweep	1
Innkeeper	1
Chauffeur	1
Nurseryman	1
Dyer	1
Bricklayer	1
Cooper	1
Compositor	1
Total	124

ILLEGITIMATE.

Occupation of Mother.	Numbers.
Domestic Servants	6
No Occupation	3
Nurse	1
Woollen Piecer	1
Farm Servant	1
Charwoman	1
Cotton Weaver	1
Factory Worker	1
Felt Hatter	1
Cotton Carder	1
Packer	1
Total	18

ZYMOTIC DISEASES.

(Syn. Infectious Diseases.)

The number of infectious diseases notified during the past year was 244, being an increase of 55 on the number notified during 1908, and giving a death-rate of .5 per 1,000 of the estimated population.

The number of deaths from all zymotic diseases during the year was 30, as compared with 77 and 42 in 1907 and 1908 respectively.

I pointed out in my Report for 1908 that the increase in the deaths during 1907 was chiefly caused by the deaths from Measles, which claimed 54 victims.

The accompanying tables show that during the past year Measles was responsible for 11 deaths and Whooping Cough for 8 deaths; had these 19 deaths, which are preventable, not been recorded, the City would have shown remarkably low zymotic death-rate, but notwithstanding the occurrence of these deaths from Measles and Whooping Cough, a low zymotic death-rate prevailed.

Table showing the number and nature of the deaths from the principal Zymotic Diseases during 1907-08-09 :—

Diseases.	1907	1908	1909
Scarlet Fever	6	1	6
Measles	54	0	11
Smallpox	0	0	0
Diphtheria and Membranous Croup ...	3	4	4
Whooping Cough	11	23	8
Typhus Fever	0	0	1
Enteric or (Typhoid) Fever	0	0	0
Other Fevers (doubtful character) ...	0	0	0
Epidemic Diarrhœa and Dysentery ...	3	14	0
Total Zymotic Diseases	77	42	30

ZYMOTIC DISEASES.

Table showing the number of notifications during each of the four quarters of the year ending 1909 :—

Nature of Infectious Disease.	Number of Notifications sent in during				Totals.
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	
Smallpox	0	0	0	0	0
Diphtheria	8	10	4	13	35
Membranous Croup ...	0	1	0	0	1
Erysipelas	24	15	17	23	79
Scarlet Fever... ...	19	10	35	55	119
Enteric or (Typhoid) Fever	0	0	1	0	1
Typhus Fever ...	0	8	0	0	8
Relapsing Fever ...	0	0	0	0	0
Continued Fever ...	0	0	0	0	0
Puerperal Fever ...	0	0	0	1	1
Totals	51	44	57	92	244

Table showing the number and nature of the Infectious Diseases at the several age groups notified in the several sub-registration districts of the City during 1909.

NOTIFIABLE DISEASE.	Cases notified in whole District.							Total Cases notified in each Locality.		No. of Cases removed to Hospital from each Locality.		TOTAL CASES REMOVED TO HOSPITAL.
	At all ages.	At Ages—Years.										
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.	St. Mary Sub-District.	St. Cuthbert Sub-District.	St. Mary Sub-District.	St. Cuthbert Sub-District.	
Smallpox	...	...	...	...	...	...	...	..	...	...	...	...
Cholera	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria (including Membranous Croup)	36	...	19	11	4	2	..	25	11	13	5	18
Erysipelas... ...	79	1	3	8	11	52	4	53	26	2	..	2
Scarlet Fever ...	119	..	29	77	9	4	...	63	56	46	41	87
Typhus Fever ...	8	...	...	3	1	4	...	1	7	1	7	8
Enteric Fever ...	1	...	...	1	...	...	..	1	..	1	..	1
Relapsing Fever ...	...	...	...	..	...	...	..	...	...	..	...	...
Continued Fever ...	...	...	...	...	...	...	...	..	...	..	.	...
Puerperal Fever ...	1	...	...	...	...	1	..	1	..	...	..	...
Plague	...	...	...	...	..	...	...	...	...	...	...	...
Totals ...	244	1	51	100	25	63	4	144	100	63	53	116

Isolation Hospital—Name and Situation—

Crozier Lodge, Fever Hospital—Total Available Beds 50
Smallpox, Isolation Hospital ,, ,, ,, 12

Number of Diseases that can be concurrently treated, 3.

Table showing the Number and Nature of the Deaths from the principal Zymotic Diseases in the 10 Years 1899 to 1908, and in the year 1909.

Disease.	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	Annual Average of 10 Years 1899—1908	Total Deaths in 1909.
Smallpox	...	...	...	...	4	...	...	...	...	...	·4	...
Measles...	5	13	5	10	3	7	17	1	54	...	11·5	11
Scarlet Fever	3	2	6	17	5	3	5	9	6	1	5·7	6
Diphtheria *	2	3	14	41	20	14	6	5	3	4	11·2	4
Whooping Cough......	20	17	14	5	20	20	11	5	11	23	14·6	8
Fevers: Typhus	...	...	...	...	...	...	5	...	...	...	·5	1
Fevers: Enteric or Typhoid	1	2	5	7	3	3	3	1	...	...	2·5	...
Fevers: Simple continued	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhœa	11	23	20	2	3	16	19	13	3	14	12·4	...
Totals	42	60	64	82	58	63	66	34	77	42	58·8	30
Rate per 1000 of population...........	·9	1·4	1·3	1·7	1·2	1·3	1·3	0·7	1·5	·84	1·2	0·5

* Includes Membranous Croup.

Table showing the several localities where deaths from the principal Zymotic Diseases occurred:—

LOCALITY.	Smallpox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Typhus Fever	Enteric or (Typhoid) Fever	Diarrhœa	Totals
St. Mary's Sub-District—									
Fever Hospital	...	...	6	2	...	1	...	...	9
Rayson's Court, Drover's Lane ...	...	...	...	...	1	...	...	...	1
Park View, Morton Terrace ...	...	...	...	..	1	...	...	...	1
Ashley Street	..	...	..	1	...	..	...	...	1
Milbourne Street	...	3	...	...	...	...	...	...	3
White Row, Willow Holme ...	...	2	...	...	...	...	...	...	2
Broadguards	...	...	.	...	1	...	...	..	1
Taylor's Court, Caldewgate ..	...	1	...	..	...	...	...	...	1
Queen Street	...	1	...	...	...	...	...	..	1
Shaddongate	...	...	...	...	1	...	...	..	1
Westmorland Street	..	1	...	...	...	...	...	...	1
Rigg Street	...	..	...	..	1	...	..	...	1
Bousfield's Lane, Scotch Street ..	...	...	...	1	...	...	...	...	1
St. Cuthbert's Sub-District—									
Union Street	...	...	...	..	1	...	...	...	1
Blackfriars Street	...	...	...	...	1	...	...	..	1
Gardenia Street	...	...	...	...	1	...	...	...	1
King Street	...	1	..	...	...	...	...	...	1
Alexander Street	..	1	...	...	...	..	...	...	1
Telford's Court, Princess Street ..	...	1	...	...	..	...	...	...	1
Totals	.	11	6	4	8	1	...	...	30

SCARLET FEVER.

(Syn. Scarlatina.)

The number of cases of Scarlet Fever or Scarlatina notified during the past year through the provisions of the Infectious Diseases Notification Act, or discovered to be in existence by the Staff of the Health Department, was 119, of which 63 cases were within the St. Mary's Sub Registration District, and the remaining 56 within the St. Cuthbert's Sub Registration District.

The number of deaths registered from this disease during the year was 6, or equal to a rate of .11 per 1,000 of the estimated population.

During the year 1908 no death was registered as due to this disease.

Of the 119 cases thus recorded, 87 or 73.1 per cent. were isolated in hospital.

RETURN CASES OF SCARLET FEVER.

Several cases of Scarlet Fever occurred during the year in houses to which a person had returned after hospital isolation; it sometimes happens that where a patient is treated in hospital after what may be regarded as a safe period, on being discharged and again mixing with other members of the family, he is capable of giving rise to infection in another member of the household; fortunately, as a result of the care taken during the treatment in hospital, this occurrence is rare. Similar infection happens also where the sick person is nursed at home, but the return from the hospital treated case is usually associated with one who has had to be detained for a longer period than usual as a result of some complication, the most common and dangerous of which are those connected with the nose, throat, and adjacent parts.

Table showing return cases and also localities where two or more cases occurred in the same house.

Secondary and Simultaneous Cases of Scarlet Fever.

SCARLET FEVER.

	Address.	Date of notification of first case.	Date of Discharge of first case from Hospital.	Date of notification of a second or more cases at same house.	If sent to Hospital.	If treated at home.
1	Harold Street ...	16th Feb., 1909	12th Apr., 1909	4th Mar., 1909	Yes	No
2	Arthur Street ..	19th Feb., 1909	14th Apr., 1909	3rd Mar., 1909 8th Mar., 1909 8th Mar., 1909	Yes	No
3	Lorne Street ...	17th Mar., 1909	19th May, 1909	17th June, 1909 6th July, 1909	Yes	No
4	Union Street ...	23rd Mar., 1909	11th May, 1909	15th June, 1909	Yes	No
5	Rickergate ...	27th Apr., 1909	9th June, 1909	17th June, 1909*	Yes	No
6	London Road ...	29th June, 1909	19th Aug., 1909	11th Aug., 1909 25th Aug., 1909* 27th Sep., 1909	Yes	No
7	Thomson Street	2nd Aug., 1909	10th Nov., 1909	20th Oct., 1909	Yes	No
8	Myddleton Street	26th Aug., 1909	6th Oct., 1909	3rd Sep., 1909	Yes	No
9	Crescent Place ...	22nd Sep., 1909	23rd Nov., 1909	27th Sep., 1909	Yes	No
10	London Road ..	6th Oct., 1909	26th Nov., 1909	17th Dec., 1909*	Yes	No
11	Clift Terrace ...	17th Oct., 1909	17th Dec., 1909	22nd Oct., 1909	Yes	No
12	Warwick Road	18th Oct., 1909	...	25th Dec., 1909	No	Yes
13	Dalston Road ..	22nd Oct., 1909	6th Dec., 1909	24th Oct., 1909	Yes	No
14	London Road ...	18th Nov., 1909	4th Jan., 1910	22nd Nov., 1909	Yes	No
15	Sybil Street ..	28th Dec., 1909	Still in Hospital.	29th Dec., 1909	Yes	No

* Cases marked thus were regarded as return cases.

The following table shows the incidence of Scarlet Fever for 1907, 1908, and 1909 in scholars attending the following schools:—

	1907	1908	1909
Robert Ferguson Schools ...	25	2	8
Brook Street do. ...	16	15	13
Denton Holme do. ...	12	0	6
Caldewgate do. ...	12	0	3
Ashley Street do. ...	11	11	8
St. Bedes do. ...	8	1	0
Fawcett do. ...	6	1	1
St. John's do. ...	5	0	7
Christ Church do. ...	5	0	1
Bishop Goodwin do. ...	4	18	14
St. Stephen's do. ...	3	1	1
Holy Trinity do. ...	2	0	0
St. Cuthbert's do. ...	1	0	1
Botcherby do. ...	1	0	3
Private do. ...	1	0	2
Upperby do. ...	0	1	0
Higher Grade School ...	0	0	1
St. Patrick's do. ...	0	0	2
Lowther Street Schools ...	0	1	4
Norman Street do. ...	0	2	1
St. Thomas's Convent (Chatsworth Square)	0	1	1
No School	65	35	42
Totals ...	177	89	119

DIPHTHERIA.

(Including Membranous Croup.)

The number of cases of this disease notified during last year was 36, against 31 cases during 1908.

Of these, 25 cases occurred in St. Mary's and 11 cases in St. Cuthbert's Sub Registration District respectively.

Four deaths were registered as due to the disease.

Of the 36 cases notified, 18 or 50 per cent. were removed to the Isolation Hospital.

No return case occurred amongst the Diphtheria, but a secondary case occurred at a later period in one house.

Table showing localities where two or more cases of Diphtheria occurred in the same house:—

Address.	Date of Notification of first case	Date of discharge of first case from Hospital	Date of notification of second case at the same house	If sent to hospital	If treated at home
Bousfield's Lane, Scotch Street (same child since died)	22nd April, 1909	26th May, 1909	15th November, 1909	Yes	No
King Street ...	7th May, 1909	...	7th May, 1909	No	Yes
Caldewgate ...	11th November, 1909	...	11th November, 1909	No	Yes
Crummock Street	18th November, 1909	...	18th November, 1909	No	Yes

Tabular statement—total number of cases of Diphtheria during the year 1909, with action taken thereon :—

Date.	Locality.	Insanitary conditions present.	Action taken.
1909			
16th Jan.	Princess Street	None	Removed to Isolation Hospital
22nd ,,	East Nelson Street	None	Do.
3rd Feb.	Victoria Place	None	Do.
3rd ,,	Melbourne Road	None	Isolated at home, and subsequent disinfection
15th ,,	Warwick Road	None	Do.
3rd Mar.	Head Street	None	Removed to Isolation Hospital
11th ,,	Flower Street	None	Do.
16th ,,	Portland Square	None	Isolated at home, and subsequent disinfection
6th April	Old Greystone	None	Removed to Isolation Hospital
8th ,,	Bay Horse Lane	None	Isolated at home, and subsequent disinfection
12th ,,	Newcastle Street	None	Removed to Isolation Hospital
19th ,,	Port Road	None	Isolated at home, and subsequent disinfection
22nd ,,	Bousfield's Lane	None	Removed to Isolation Hospital
7th May	King Street	None	Isolated at home, and subsequent disinfection
7th ,,	Do.	None	Removed to Isolation Hospital
11th ,,	Warwick Square	None	Do.
14th ,,	John Street	None	Do.
13th June	Solway Terrace	None	Do.
5th Aug.	Thomas Street	None	Do.
11th ,,	Bassenthwaite St.	None	Isolated at home, and subsequent disinfection
12th ,,	Arthur Street	None	Removed to Isolation Hospital
28th Sept.	Wood Street	None	Do.
13th Oct.	Goodwin Terrace	None	Isolated at home, and subsequent disinfection
14th ,,	Port Road	None	Removed to Isolation Hospital
15th ,,	Warwick Square	None	Isolated at home, and subsequent disinfection
11th Nov.	Caldewgate	None	Do.
11th ,,	Do.	None	Do.
11th ,,	Do.	None	Do.
13th ,,	Corporation Road	None	Removed to Isolation Hospital
15th ,,	Bousfield's Lane	None	Isolated at home, and subsequent disinfection
18th ,,	Crummock Street	None	Do.
18th ,,	Do.	None	Removed to Isolation Hospital
27th ,,	Brook Street	None	Isolated at home, and subsequent disinfection
18th Dec.	Richardson Street	None	Do.
24th ,,	Warwick Road	None	Do.

Table showing number of cases of Diphtheria for 1907-8-9 in scholars attending the following schools:—

	1907.	1908.	1909.
Ashley Street Schools .	5	4	1
Robert Ferguson do. ...	0	1	1
St. John's do. ...	1	1	0
Higher Grade do. ...	1	0	0
Brook Street do. ...	0	1	0
Fawcett do. ...	0	1	0
Caldewgate do. ...	0	1	1
St. Bede's do. ...	0	1	3
St. Cuthbert's do. ...	0	0	1
St. Patrick's do. ...	0	1	1
Botcherby do. ...	0	1	0
Bishop Goodwin do. ...	0	3	1
Private School	0	0	1
No School	5	12	25
Totals.	12	27	35

SMALLPOX.

The district was free from Smallpox during the past year.

MEASLES.

Eleven deaths were registered during the past year as due to this disease. In 1908 no death was registered.

Measles is a disease almost entirely confined to young life and is very infectious, therefore too much care and caution cannot be exercised in isolating the affected children from healthy members of a family at the earliest sign of illness. Yet how many otherwise good mothers treat the disease as a trifling ailment, and one which the child is bound to get; both these stupidly rooted ideas are fallacious, for Measles is a most fatal infective disease in children, and is responsible annually for an appalling loss of life. Secondly, it is untrue to state that every child must take Measles, seeing that many children actually go through life without contracting the disease when care is observed, and it is important to keep always in mind the fact that the longer the infant or young child can be protected, the less likely he is to contract the disease.

A great number of children in this City suffered from Measles during the past year, which necessitated the closing of the infants' department of 2 schools, viz.:—

St. Cuthbert's Infants', which was closed for a period of three weeks from the 31st May, and

Fawcett Infants', which was closed from the 8th June and was not used again as a teaching centre.

There are no available statistics of previous epidemics of Measles, but the following figures will show to what extent children attending the schools in this City were affected; these figures do not take into account cases of Measles occurring in children below school age, but only in those children actually attending school, and perhaps convey very little to the mind of the casual reader as to the amount of suffering, distress, and inconvenience caused in a great number of the homes in which the disease broke out.

Figures showing actual number of sufferers among school children from several non-notifiable infectious diseases during 1909:—

All Schools.	Measles.	Chicken Pox.	Whooping Cough.	Mumps.	Total.
36 Departments ...	728	171	133	112	1,144

Figures showing number of children who were in contact with the above, and which necessitated their exclusion from school during 1909:—

All Schools.	Measles.	Chicken Pox.	Whooping Cough.	Mumps.	Total.
36 Departments ...	873	180	98	150	1,301

Annual mortality from Measles 1874 to 1909:—

1874	1
1875	56
1876	5
1877	12
1878	2
1879	22
1880	4
1881	0
1882	36
1883	11
1884	0
1885	22
1886	4
1887	16
1888	3
1889	44
1890	1
1891	22
1892	3
1893	77
1894	20

1895	5
1896	1
1897	1
1898	59
1899	5
1900	13
1901	5
1902	10
1903	3
1904	7
1905	17
1906	1
1907	54
1908	0
1909	11

ENTERIC FEVER.

(Syn. Typhoid Fever.)

One case only of Enteric Fever was notified during the year, in which recovery took place. The patient was a child, whom I saw twice after notification and before isolation. The question as to the diagnosis of Enteric Fever was somewhat problematical at the time, and the behaviour of the case after its admission into the Isolation Hospital left some doubt as to whether the case was actually one of Enteric Fever.

This almost entire absence of Enteric Fever in the City during the last few years would serve to argue in favour of conditions operating towards the permanent elimination of the disease, excluding the misfortune of either sudden importation of the disease or propagation due to infected food, etc., and if one were asked what are the factors concerned in its elimination, one would direct attention to the fall in the incidence of the disease since the conversion of the midden-privies of the City into water closets, supplemented by the Geltsdale Water Scheme, and the inauguration of the present system of sewage disposal.

Tabular statement of the case notified as Enteric (Typhoid) Fever during the year 1909, with action taken.

Date.	Locality.	Insanitary conditions present	Action taken	Result
21st July	Caldcotes	None	Removal to Hospital and house disinfected	Cured

ENTERIC OR (TYPHOID) FEVER IN CARLISLE.

		Annual No. of Cases.
Before Adoption of Notification Act. Typhoid Cases estimated from the deaths on the basis of the case mortality of Enteric or (Typhoid) Fever during the 20 years of compulsory notification.	1874	172
	1875	180
	1876	75
	1877	37
	1878	82
	1879	82
	1880	112
	1881	52
	1882	67
	1883	60
	1884	52
	1885	7
	1886	45
	1887	127
	1888	60
	1889	7
Cases of Enteric or (Typhoid) Fever notified during 20 years of compulsory notification.	1890	21
	1891	18
	1892	32
	1893	20
	1894	15
	1895	20
	1896	13
	1897	19
	1898	22
	1899	19
	1900	7
	1901	19
	1902	16
	1903	6
	1904	15
	1905	7
	1906	5
	1907	1
	1908	2
	1909	1

TYPHUS FEVER.

During the past year 8 cases of this disease occurred within the City, and in one case, namely, that of an adult male, the attack was fatal.

Fortunately this disease is now rare, and outbreaks of it when they do occur are at rarer intervals and are not followed by the disastrous consequences as was the experience in former times, but a characteristic of the disease is that it has a tendency to crop up again in a locality in which a previous outbreak has taken place, but it is equally noticeable that in these outbreaks the earlier cases are almost invariably restricted to that class of people who are of filthy habit, and amongst whom overcrowding and a self-created insanitary environment exists. Fortunately for the City this outbreak did not reach alarming proportions, but this was in no small measure the result of the immediate activity and persistent labours of the staff of the Health Department, in removing the infected persons, in exercising careful supervision of contacts, and thoroughly dealing with the infected houses and their contents.

Seven of the eight cases were removed from three dwellings. The eighth case was that of a maid engaged in the administrative portion of the Isolation Hospital, who paid clandestine visits to the ward in which the person who died was isolated.

In reply to the request of the Local Government Board, I prepared and forwarded a report upon the outbreak, a copy of which will be found in the appendix (post).

The report mentioned deals only with six of the cases, the remaining two cases, namely, an adult female living with her husband in a single room tenement in Waugh's Court, Botchergate, and the maid at the Hospital not having manifested any sign of the disease up to the time the report was despatched to the Local Government Board.

It will be interesting to recapitulate the previous outbreaks of Typhus Fever in this City.

It appears that in the first year of the existence of the Carlisle Board of Health, 1874, the disease exhibited epidemic proportions, and upon an investigation made by Sir W. H. Power (then Mr. W. H. Power) of the cases which occurred from April of that year, in which month the outbreak first began, to September of the same year, it was estimated that 680 persons were attacked, of which number 68 proved fatal.

This outbreak did not terminate until 1876, and during the years 1874-75 there were no fewer than 144 deaths, representing 1,140 cases of the disease.

A period of nine years elapsed, during which the City was free from the disease, but in the latter part of 1885 the disease made its appearance in Rigg Street, from where it spread to Queen Street adjacent, causing in all seven cases.

Two years later, 1887, eleven cases occurred in the following streets: Caldcotes, Scott Street, Burns Street, and Bridge Lane. Then came an outbreak in 1892 confined to Finkle Street, Castle Lane, and Annetwell Street, when sixteen persons were attacked.

In April 1895 sixteen cases occurred in Monksclose Road, Barrock Street, Rigg Street, Shakespeare Street, Milbourne Street, Peter Street, and Byron Street. The further remarks of the late Dr. Brown upon this disease are both interesting and instructive, for he points out that not only has each outbreak occurred in the month of April, but also that an April occurrence attended an epidemic described by Dr. Heysham, when 600 persons were attacked, and that the Irish element of the population has usually been the first in which the disease has manifested itself. Further, that all the outbreaks have commenced in the limited area occupied by old house property in Caldewgate or similar class property situated in adjacent districts in the vicinity of the Castle.

Whatever the origin of the disease may be, generally the cases are traceable to close association with another sick person, and the poison appears to be capable of being given off from the breath, the skin, and probably the excretions; the dead body appears to remain infective for some days, and the infection may be conveyed by bedding and clothing even to a distance, and a third person appears to be capable of carrying the infection, whilst the vitiated air of the sick room is a most powerful vehicle for the transference of the disease from the sick to the healthy; briefly then—overcrowding, deficient ventilation, squalor, dirt, and poverty are the invariable accompaniments of the disease, and are to a great extent its etiological factors.

ISOLATION HOSPITAL.

Diseases.	No. of cases admitted	No. of cases recovered.	No. of cases died.
Diptheria	18	16	2
Erysipelas	2	2	...
Scarlet Fever	87	81	6
Typhus Fever	8	7	1
Enteric or Typhoid Fever	1	1	...
Totals ...	116	107	9

NOTIFICATION FEES.

The total cost in fees paid during the past year amounted to £31 12s. 6d.

DIARRHŒA.

No death was registered during the past year as due to this disease. 1908 was responsible for 14 deaths, and 3 only occurred in 1907.

The absence of deaths does not mean that Diarrhœa was not present, for Epidemic Diarrhœa occurs every year, and its intensity varies considerably from year to year.

Deaths from this disease are more numerous during the hotter months of the year, viz., July, August, and September, and there is a strong relationship between the occurrence of Epidemic Diarrhœa, temperature, and other atmospheric and telluric (earth) conditions, a hot dry summer being usually associated with an increase in the number of deaths from Diarrhœa, and a cool wet summer with a decrease.

It will be observed from the foregoing remarks that the conditions which favour the occurrence of Diarrhœa are such as also favour the dissemination of dust and dirt, an increase in the number of house flies, increased susceptibility of all food stuffs to rapidly decompose, and these are the most important exciting causes of the malady.

So that with the approach of hot weather, greater precautions should be taken to prevent decomposition and contamination of food stuffs, especially by flies and filth, *e.g.*, blown garbage, dried excreta, and like materials, readily carried about by air currents, the pernicious effects of which are fostered by the prevailing favourable atmospheric temperature. Particular care should be taken with milk and other foods which readily decompose in warm weather, and which form the principal diet of infants, amongst whom the greater number of deaths from Diarrhœa is found.

MORTALITY FROM DIARRHŒA AND ENTERIC (TYPHOID) FEVER, 1874–1909.

Year.	DEATHS FROM DIARRHŒA.															Deaths from Enteric or (Typhoid) Fever.
	Autumn Quarter. No. Registered.	Rate per-1000 of population	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November	December.	Total for Year.	No. Registered.
1874	35	1.50	2	2	...	...	1	1	6	20	9	6	...	3	50	23
1875	27	1.30	2	...	4	1	2	4	5	12	10	2	..	2	44	24
1876	12	1.10	3	1	3	3	1	...	2	5	5	1	6	7	37	10
1877	10	.84	2	1	2	1	2	2	2	6	2	1	3	4	28	5
1878	26	1.06	1	2	1	1	3	3	9	8	9	1	1	1	40	11
1879	4	.34	2	1	1	1	...	2	2	2	...	...	1	..	12	11
1880	31	1.20	...	...	5	...	...	...	3	7	21	5	1	...	42	15
1881	7	.50	...	2	...	2	...	2	2	2	3	3	...	2	18	7
1882	17	.55	...	1	...	...	...	1	5	7	5	1	...	...	20	9
1883	8	.45	...	2	...	...	..	...	...	3	5	6	1	...	17	8
1884	14	.61	2	...	...	1	1	1	7	3	4	3	1	...	23	7
1885	4	.26	1	1	1	...	...	1	2	2	...	...	1	1	10	1
1886	8	.60	1	2	...	...	...	2	1	1	6	7	1	2	23	6
1887	7	.36	1	...	1	2	...	2	...	5	2	1	...	...	14	17
1888	8	.33	1	...	1	1	...	...	...	3	5	1	...	1	13	8
1889	6	.27	2	1	...	...	...	...	...	5	1	1	...	1	11	1
1890	16	.54	...	...	2	...	1	...	1	7	8	1	1	1	22	2
1891	5	.22	1	...	...	...	...	1	1	2	2	2	..	...	9	2
1892	2	.10	1	...	...	...	..	...	...	...	2	1	...	..	4	3
1893	9	.49	...	2	2	2	...	2	...	2	7	1	2	...	20	5
1894	1	.09	..	..	..	...	..	...	...	...	1	1	2	...	4	2
1895	3	.24	2	1	..	1	...	..	1	...	2	3	...	...	10	4
1896	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	3
1897	4	.21	...	...	2	1	...	...	1	...	3	2	...	...	9	3
1898	16	.57	...	...	2	...	1	1	1	4	11	2	1	1	24	2
1899	10	.25	...	...	...	...	...	...	...	3	7	1	...	...	11	1
1900	7	.53	...	...	...	1	...	4	1	3	3	8	3	..	23	2
1901	11	.43	2	3	...	...	...	1	1	5	5	3	...	..	20	5
1902	1	.04	...	...	...	...	...	...	1	...	...	...	1	...	2	7
1903	1	.06	...	...	1	...	..	1	...	...	1	...	...	...	3	3
1904	7	.33	...	...	..	...	..	1	...	4	3	2	3	3	16	3
1905	10	.39	3	...	...	1	2	...	...	5	5	2	1	...	19	3
1906	7	.26	2	...	1	1	...	...	...	2	5	...	2	...	13	1
1907	...	.05	...	...	...	...	1	2	..	...	...	...	...	...	3	...
1908	12	.28	...	...	...	1	...	...	2	3	7	...	...	1	14	...
1909	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

SCHOOL CLOSURE.

The Infants' Department of two Schools was closed in two instances during the year. (See notes under Measles.)

TUBERCULOUS DISEASES.

Under this heading are included Pulmonary Tuberculosis (Phthisis), Tuberculous Meningitis (including acute

Hydrocephalus), Tuberculous Peritonitis, Tabes Mesenterica, Generalised Tuberculosis, Tuberculosis of bones, joints, and other organs, Lupus, and Scrofula. The total number of deaths registered during the year from Tuberculosis of all forms was 92, of which 64 or 69.4 per cent. of the deaths were from Tuberculous Disease of the Lungs (Phthisis).

During the year 1908, 90 deaths were registered from all forms of Tuberculosis, of which 56 or 62.6 per cent. were from Phthisis. These figures show that during the past year there was an increase of 2 in the number of deaths from all forms of Tuberculosis, and an increase of 8 or 6.8 per cent. in the deaths from Phthisis.

Eleven deaths from Tuberculosis of all forms occurred in institutions within the City, and of this number 7 were due to Phthisis.

PULMONARY TUBERCULOSIS OR PHTHISIS.

This is the most frequent of Tuberculous Diseases, and the most universally prevalent of all diseases amongst white races; it is an infective disease, and is usually transmitted from man to man, but it is also capable of being transmitted from animals to man by means of food, of which milk is the commonest example; but by far the greatest number of cases are those which are caused by infection due to the inhalation or swallowing of the bacillus contained in the sputum or spit from the lungs of human beings suffering from the disease.

Tuberculosis is most common amongst the poor, in fact it may be said to be a disease especially of the lower classes, and by whom it is usually disseminated, greatly as a result of their ignorance, dirty habits, and other characteristic modes of living.

The town dweller is more frequently a sufferer than he who lives in the country, and there is a close relationship between overcrowding of rooms, houses, and workplaces, and consumption, the overcrowding of houses very often indicating poverty, and almost invariably associated with an impure atmosphere.

Many trades predispose the worker to this disease, especially those occupations accompanied by the formation of dust or where work is carried out in overcrowded, hot, and moist workrooms. Intemperance and other debilitating conditions are also important factors in the predisposition to this disease.

Phthisis depends largely upon known and remediable conditions, and improvement in hygiene has no doubt led to a decline in the death-rate from this disease, but unfortunately it is still very prevalent, and ranks amongst the most fatal of diseases. A careful study of the existing unsatisfactory conditions will not fail to supply suggestions as to their remedy, which includes efforts not only directed towards better hygiene generally, but a competent staff, including someone available for the purpose of frequently visiting and guiding the sufferer and educating his friends.

PHTHISIS.

Ages at death of the 64 cases in Carlisle during 1909:—

Under 1 Year.	1–5	5–15	15–25	25–35	35–45	45–55	55–65	65–75	All Ages.
2	5	5	13	20	7	8	2	2	64

St. Mary's Sub Registration District ...	38
St. Cuthbert's do. do. ...	26
	64

Three of the chief diseases of the chest, viz., Pneumonia, Bronchitis, and Pleurisy, accounted for 108 deaths during 1909.

St. Mary's Sub Registration District ...	66
St. Cuthbert's do. do. ...	42
	108

PULMONARY TUBERCULOSIS (PHTHISIS), TABES MESENTERICA, AND TUBERCULOUS MENINGITIS.

The following table gives the number and nature of voluntary notifications during 1909:—

Date.	Sex.	Age.	Address.	Name of Disease as notified.
1909.				
Jan. 20th	Female	6 months	Scott's Court, Rickergate ...	Tubercular Phthisis
,, 23rd	Do.	*—	Mary Street	Tabes Mesenterica
Feb. 1st	Do.	7 months	Trinity Buildings	Do.
,, 1st	—	—	Old Greystone	Do.
,, 1st	Female	*—	Port Road	Phthisis
,, 8th	—	*—	Sheffield Street	Do.
,, 8th	Female	2 years	Denton Crescent	Tabes Mesenterica
,, 8th	Male	2 years	Harrison's Court, Denton Street	Do.
Mar. 9th	—	*—	Railway Place, English Damside	Phthisis
,, 9th	Male	5 years	Lonsdale's Lane, Caldewgate	Do.
,, 14th	Female	5 years	Mulcaster Crescent, Blackhall Road	Tabes Mesenterica
,, 14th	Male	12 years	Devonshire Walk	Do.
,, 14th	Female	30 years	Isabella Street	Phthisis
,, 14th	Do.	20 years	Hope's Court, Port Road ...	Do.
,, 23rd	Do.	11 years	Murchie's Court, South St.	Do.
,, 23rd	Male	17 years	Grasmere Street	Do.
,, 29th	Female	3 years	Simpson's Court, Caldewgate	Tabes Mesenterica
,, 29th	Do.	9 months	Rigg Street	Do.
,, 30th	Male	36 years	Linton Street	Phthisis
April 17th	Do.	17 years	Harrison Street	Do.
,, 17th	—	*—	Barrock Street	Do.
,, 17th	—	*—	Byron Street	Do.
,, 17th	Male	7 months	Linton Street	Tubercular Meningitis
May 14th	—	*—	Rigg Street	Tabes Mesenterica
,, 27th	—	*—	South George Street ...	Phthisis
June 11th	—	*—	Slack's Court, Milbourne St.	Do.
,, 11th	Female	3 years	Lonsdale's Lane	Do.
,, 11th	—	*—	Drover's Lane, Rickergate...	Do.
,, 11th	Male	19 years	Jane Street	Do.
,, 15th	—	*—	East Dale Street	Do.
,, 18th	Male	50 years	Lowther House, Lowther St.	Do.
,, 18th	Female	25 years	Crummock Street	Do.
,, 29th	Male	12 years	Bell's Court, Rickergate ...	Do.
July 9th	Female	1 year	Jane Street	Tabes Mesenterica
,, 9th	Male	4 years	Key's Lane, Scotch Street ..	Do.
,, 9th	Female	18 years	Irving's Lane, Botchergate	Phthisis
,, 9th	Male	43 years	Carlisle Square, Blackfriars Street	Do.
,, 9th	Female	50 years	Botchergate	Do.

TUBERCULOSIS NOTIFICATION—*continued.*

Date.	Sex.	Age.	Address.	Name of Disease as notified.
1909.				
July 12th	Male	33 years	Backhouse Court	Phthisis
,, 28th	Do.	35 years	Bowman's Court, Rickergate	Do.
,, 28th	—	*—	South John Street	Tabes Mesenterica
Sept. 24th	Male	3 months	Jane Street	Do.
,, 28th	—	*—	Atkinson's Court, Milbourne Street	Phthisis
,, 30th	Male	12 years	Railway Place, English Damside	Do.
Oct. 12th	—	*—	Walsh's Court, St. Nicholas	Do.
,, 25th	—	*—	The Fleet, Rigg Street ...	Do.
,, 27th	Female	44 years	Bassenthwaite Street ...	Do.
Nov. 8th	Do.	40 years	Little's Court, Caldewgate...	Do.
,, 8th	Do.	9 months	Rigg Street	Do.
,, 26th	Male	25 years	Shaddongate	Do.
,, 26th	Do.	21 years	Oswald Street	Do.
Dec. 2nd	Do.	40 years	Union Street	Do.
,, 9th	Do.	2 years	Delta Court, William Street	Do.

TOTAL NUMBER OF CASES—52.

* In the above cases where a blank occurs the sex and age were not stated in the Notifications, and the person had either left the address given or was dead when the house was visited.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1908.

The above regulations, having the force of an Act of Parliament, came into operation 1st January, 1909. These regulations provide that all cases of Pulmonary Tuberculosis attended by Poor Law Medical Officers and occurring in persons in receipt of Poor Law medical relief shall be notified to the Medical Officer of Health.

A memorandum on these regulations compiled by the principal Medical Officer of the Local Government Board was issued to every Medical Officer of Health for his information and guidance, and also in order that uniformity amongst Health Authorities in the working of the regulations might result. The memorandum, a copy of which is printed in the appendix (post), deals with the subject in a masterly manner, laying stress upon the importance of the fullest possible administrative help being sanctioned in order to facilitate the carrying out of the pressing requirements mentioned in the regulations.

The number of notifications received by me during the year in respect of these Poor Law cases was 24, 18 being those of males, and 6 females, and in each case where the patient has remained at home the house has been visited periodically, and, as far as possible, the patient and his friends instructed verbally, and also by means of printed instructions; they have also been encouraged to try and carry out the simple precautions against the spread of the disease, and where necessary a spittoon has been provided by the Health Department free.

In some of the cases death had taken place in the interval between the receipt of the notification and the visit to the house. In such cases disinfection of the room, and, as far as possible, the contents was carried out.

It is difficult to predict what effect the regulations may have in the future, but so far I have been impressed by the fact that in every case seen alive the patient was in an advanced stage of the disease when notified.

It would appear that among the class of people affected by the notification a number do not obtain medical advice until in an advanced stage, even when such advice can be obtained free; others would appear to have obtained advice at an earlier period, but being either unwilling or unable, have not carried out the treatment, and are not again heard of until just before death, when the disquieting reflection of a possible Coroner's inquiry causes the friends to seek advice in order to secure a medical certificate.

Form A.	
Notifications from Medical Officers of Poor Law Institutions of persons in their Institutions suffering from Phthisis	9
Form B.	
Notifications from District Medical Officers of the Carlisle Union of persons suffering from Phthisis in their districts.	15
Form C.	
Notifications from Superintendent Officers of Poor Law Institutions notifying the removal of a Phthisis patient from the Institution to another address	10
Form D.	
Notifications from Relieving Officers of change of address of Phthisis patients in their districts	1

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1908.

Tabulated Statement showing particulars of cases notified to Medical Officer of Health during 1909, and action taken.

Consecutive No.	Sex.	Age.	Notified from Poor Law Institution.	Name of Poor Law Union.	Did the patient leave Poor Law Institution before death.	Did the patient go to his own residence or another Institution.	Changed Residence, *i.e.*, Persons who did not enter Poor Law Institution.	Visits undertaken by Staff of Health Department.	Other actions taken by Health Department.	Result at the end of 1909.
1	Male	42 years	No	..	..	..	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left	Dead
2	Male	35 years	No	...	...	..	Yes	Visited by M.O.H. ,, Sanitary Insp. Still being visited	Advice given Instruction paper left	Living
3	Male	37 years	No	..	..	...	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left	Dead
4	Female	16 years	No	...	...	...	...	Visited by M.O.H. ,, Sanitary Insp. Still being visited	Advice given Instruction paper left	Living
5	Male	24 years	No	...	...	...	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left Pocket spittoon given Room sprayed with Formaldehyde Disinfection of contents supervised	Dead
6	Male	13 years	No	...	...	...	..	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left Rooms sprayed with Formaldehyde Disinfection of contents supervised	Dead

7	Male	1½ years	No	...	...	...	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left	Dead
8	Male	20 years	No	...	...	...	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left Room sprayed with Formaldehyde Disinfection of contents supervised	Dead
9	Female	18 years	Yes	Carlisle	Yes	Went to own residence	...	Visited by Sanitary Inspector	Advice given Instruction paper left	Living
10	Female	12 years	Yes	Carlisle	Yes	Another Institution	...	Not visited in Workhouse	...	not known
11	Male	29 years	Yes	Carlisle	Yes	Went to own residence	...	Visited by M.O.H.	...	Living
12	Male	42 years	Yes	Carlisle	...	...	...	Not visited in Workhouse	...	Dead
13	Male	33 years	No	..	...	...	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left	Living
14	Male	40 years	No	..	...	...	...	Visited by M.O.H.	Advice given	Living
15	Male	53 years	Yes	Carlisle	No	...	...	Not visited in Workhouse	...	Dead
16	Male	42 years	Yes	Carlisle	Yes	Another Institution	...	Not visited in Workhouse	...	not known
17	Male	31 years	Yes	Carlisle	Yes	Went to own residence	..	Visited by M.O.H. ,, Sanitary Insp.	Advice given	Living
18	Male	19 years	No	...	...	...	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left Room sprayed with Formaldehyde House reconstructed	Dead

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1908—*continued.*

Consecutive No.	Sex.	Age.	Notified from Poor Law Institution.	Name of Poor Law Union.	Did the patient leave Poor Law Institution before death.	Did the patient go to his own residence or another Institution.	Changed Residence, *i.e.*, Persons who did not enter Poor Law Institution.	Visits undertaken by Staff of Health Department.	Other actions taken by Health Department.	Result at the end of 1909.
19	Female	40 years	No	...	...	...	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left	Living
20	Female	40 years	Yes	Carlisle	Yes	Went to own residence	...	Not visited in Workhouse	...	Dead
21	Male	25 years	No	...	...	...	Yes	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left	Living
22	Male	39 years	Yes	Carlisle	No	...	...	Not visited in Workhouse	...	Dead
23	Female	60 years	No	...	...	...	...	Visited by M.O.H. ,, Sanitary Insp.	Advice given Instruction paper left	Living
24	Male	50 years	Yes	Carlisle	No	...	...	Not visited in Workhouse	...	Dead

ACREAGE, PHTHISIS, DENSITY, INFANT MORTALITY, &c.

Wards.	Acreage,	Density of population per acre.	Phthisis. Death rate per 1,000 of population	Birth Rate.	General Death Rate.	Infantile Mortality.
Castle	131	31	0·4	19·4	8·5	125·0
Rickergate	342	11	0·7	11·6	8·0	130·4
Aglionby	120	46	1·0	13·7	11·9	149·4
Greystone	77	85	1·9	21·7	18·8	111·8
St. Nicholas ...	126	40	0·5	24·8	10·7	78·7
Currock	228	28	1·0	29·3	13·6	148·1
Denton Holme ...	95	47	0·4	30·4	12·5	106·3
Murrell Hill ...	211	22	0·6	18·1	8·9	183·9
Caldewgate... ..	165	92	1·1	24·8	12·7	171·4
Newtown	533	9	3·8	27·4	34·1	69·4

CANCER.

This term includes all registered deaths from causes comprised within the general term, and the number of deaths thus registered during the year was 58 as against 35 in the year 1908:—

The age distribution was as follows:—

Age.	1909
25—35 years	2
35—45 „	6
45—55 „	12
55—65 „	15
65—75 „	17
75 and upwards	6
Total	58

MIDWIVES ACT, 1902.

Supervision of Midwives.

At the end of each quarter of the year I visited all the registered midwives practising within the City and made inspections of their houses, clothing bags, and appliances. One midwife I found untidy both in her dress and her house, and not possessing all the appliances required by the regulations of the Central Midwives' Board; she is however not a trained midwife.

One case of Puerperal Fever occurred in the practice of a midwife, which was carefully investigated and reported upon. The midwife was suspended from practice for 14 days during which time her clothing bag and appliances were carefully cleansed and disinfected.

HOUSING OF WORKING CLASSES.

Housing of Working Classes Act, 1890.
Housing, Town Planning, &c., Act, 1909.
Carlisle Corporation Acts, 1887, 1904.

During the past year a number of properties which were deemed unfit for human habitation were brought to the attention of the Committee. All these several groups of houses are set out in detail in the Sanitary Inspector's Report (post); proceedings were taken under one or more of the above Acts to prohibit their further use as dwelling houses, failing their being put into a habitable and sanitary condition.

As a result of the proceedings taken a considerable amount of good work was carried out, resulting in an improved condition of the property. In several instances, where the owner decided not to carry out the necessary alterations, a closing order has been sanctioned by the

Committee during the early part of this year under the Housing, Town Planning, &c., Act, 1909.

This does not mean that the property is irrevocably closed from the time the order is sanctioned, but that this would happen if the necessary improvements were not undertaken or notice of appeal given within the prescribed statutory period.

It will be observed in the following pages of this Report that in some instances the improvements undertaken consisted of repairs without structural alteration, whilst in others considerable structural alteration was undertaken, and lastly some of the tenements were allowed to be closed by default.

The improvements brought about by these repairs and alterations to the property under review cannot fail to have a salutary influence upon the inhabitants and a beneficial effect upon the Public Health of the localities, but it is a fact much to be deplored that there is a great amount of the same class of property existing in the City, *e.g.*, " back to back " and court property, much of the latter often approached by a narrow passage running beneath a front street shop or house, and consisting of an aggregation of single-room tenements, a considerable number of which are reached by a common stairway leading to a small cramped landing, characterised by the stagnant condition of the ventilation, on to which the doors of three or four tenements open, and which in many instances furnishes the sole means of fresh air supply.

The erection of such property, thanks to the provisions of the recent Act of Parliament, is a thing of the past, and although the clearing away and alteration of these dangerous relics of the hand-loom period, which constitute a great portion of these parts where insanitary environment exists in the City, may not be welcomed by a certain section of the public, it is nevertheless imperative, as such conditions are capable of giving rise not only to single cases of ill-health and misery, but also to dangerous and prolonged epidemics of serious disease, that the sooner they cease to exist the better for every inhabitant of the City.

FACTORIES, WORKSHOPS, WORKPLACES, AND HOMEWORK.

1.—INSPECTION OF FACTORIES, WORKSHOPS, AND WORKPLACES.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
Factories . .. . (Including Factory Laundries)	11	...	...
Workshops ... ... (Including Workshop Laundries)	374	26	...
Workplaces ... ... (Other than Outworkers' premises included in Part 3 of this Report)	1	...	...
Total	386	26	..

2.—DEFECTS FOUND IN FACTORIES, WORKSHOPS, AND WORKPLACES.

Particulars.	Number of Defects.			Number of Prosecutions.
	Found.	Remedied.	Referred to H.M. Inspector.	
Nuisances under the Public Health Acts:—				
Want of cleanliness	12	12	...	...
Want of ventilation	...	...	..	...
Overcrowding...	1	1	...	...
Want of drainage of floors ...	...	...	...	...
Other nuisances	10	10	...	...
Sanitary accommodation:—				
1. Insufficient	...	...	...	...
2. Unsuitable or defective	..	...	...	...
3. Not separate for sexes	...	...	...	...
Offences under the Factory and Workshop Act:—				
Illegal occupation of underground bakehouse (s. 101) ...	...	...	...	..
Breach of special sanitary requirements for bakehouses (ss. 97 to 100)	14	14	...	...
Other offences ... ... (Excluding offences relating to outwork which are included in Part 3 of this report)	..	...	...	
Total	37	37	...	...

3.—HOME WORK.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107,				
	Lists received from Employers.				
	Twice in the year.			Addresses of Outworkers.	Inspection of Outworkers' Premises.
	Lists.	Outworkers.		Received from other Councils.	
		Contractors.	Workmen.		
Wearing apparel— (1) Making, &c....	4	...	8	2	7
(2) Cleaning and Washing ...	...	...	...	...	...
Total ...	4	...	8	2	7

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year		Number.
Important classes of workshops, such as workshop bakehouses, may be enumerated here.	Workshops ...	216
	Bakehouses ...	64
	Total number of workshops on Register ...	280

5.—OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (s. 133)	9
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5) :—	
Notified by H.M. Inspector	22
Reports (of action taken) sent to H.M. Inspector	3
Other	...
Underground Bakehouses (s. 101) :—	
Certificates granted during the year	...
In use at the end of the year	3

PUBLIC SLAUGHTER-HOUSES.

MEAT INSPECTION, ETC.

During the year 87 special examinations of diseased carcases have been made, as compared with 92 in 1908.

The following table gives particulars of the carcases examined :—

Animal	Total number of animals slaughtered	Number of Examinations of suspected carcases	Number of cases in which the whole carcase was pronounced unfit for food	Number of cases in which portions of a carcase were pronounced unfit for food	Number of carcases affected with Tuberculosis
Oxen ...	3713	60	52	8	55
Sheep ...	16799	23	19	4	...
Calves ...	690	3	3	...	2
Pigs ...	3744	1	1	...	1
Totals ...	24946	87	75	12	58

DAIRIES, COWSHEDS, AND MILKSHOPS.

I visited all the cow byres within the City, and some of them on several occasions during the past year, and found that important structural alterations which were required had been carried out in several of them in order to bring them more into compliance with the bye-laws of the Corporation. There are, however, one or two byres in which further changes will be necessary if the cow-keepers are desirous of housing their cattle in the same byres.

Unfortunately many of the byres are of a temporary nature in so far as it concerns their structure, consisting as they do either of tarred wood or corrugated iron, or of a combination of the two, and it is in some of these byres that the greatest tendency to overcrowding exists, and greater difficulty is experienced in dealing with the occupier.

We are, however, fortunate in the fact that the dairy cattle in the City are of a good class; furthermore, the careful inspection of the cattle by the Corporation Veterinary Surgeon at regular intervals, and the examination of all newly purchased cows, together with the clearing out of suspected and diseased animals, eliminate the risks which may be said to be occasioned from cattle housed in the rural districts, amongst which there is either no regular inspection or at the best a mere perfunctory one, and from which, unfortunately, a great deal of the milk supply of the City is drawn.

PAVING OF STREETS, LANES, ETC.

Whilst the streets of the City generally are well paved, there exist too many parts where either no attempt has been made to create an impervious condition of the soil, or where unsuitable material has in the past been utilised for the purpose. In respect to the former of the two conditions, attention is directed to those parts of the City in which unpaved or uncovered portions of the land are to be found either behind or in front or between adjacent rows of property. With regard to those parts in which unsuitable paving material has in the past been used, reference is especially made to the cobbled roads, which provide little in the nature of an impervious surface.

As there exists a very close relationship between the prevalence of certain epidemic and other disease conditions (of which particular mention might be made of the diarrhœal group) and the nature of the superficial covering of the earth, it is extremely important that there should exist as little unpaved soil as possible in the neighbourhood of houses in towns where the excrement of animals and other filth capable of contaminating the unpaved ground is, in dry weather, so readily carried about in the form of dust by wind currents.

SCAVENGING.

Too little attention is given to the scavenging and cleansing of some of the narrower lanes and the common courts within the City, and it is of the utmost importance that these lanes and courts should be cleansed regularly and often.

At the present time the duty of cleansing such parts as are not undertaken by the Corporation falls upon the residents, and having regard to the fact that in so many parts of the City these lanes and courts, especially the latter, are continually in such a dirty condition from the neglect of sweeping and by the deposit of rubbish and filth by the tenants as to constitute a serious danger to the health of the public, and that the cleansing or sweeping of these areas is impossible of attainment amongst the class of people inhabiting them, I hope the Committee, without further recommendation, will undertake this work, the cost of which would be comparatively trifling.

SEWAGE WORKS.

During the past year I have paid numerous visits—many of them surprise visits—to the Sewage Works, and each time have been satisfied that the work was being carried out by those employed there in a careful and judicious manner.

The several stages through which the sewage passes before its final discharge into the river are capably supervised, and the resulting effluent is very satisfactory. The lagooned material causes no discomfort to those working with it, and whatever slight effluvium arises from it during carting is only appreciable at a very slight distance; but greater care should be exercised by those removing this material so as to avoid possible complaints of leakage from the carts during its passage through the streets of the City.

AMBULANCE.

The horse ambulance provided by the Corporation is under the superintendence of the Head Constable, and is housed at the Chief Fire Station, Spring Gardens Lane. It is in keeping with modern requirements and is available for use by the general public in case of accident and injury by fire, etc., or its use may be obtained for the removal of any sick or convalescent person other than in infectious diseases (for which a special ambulance is provided).

DISINFECTION.

A further attempt was made during the past year to insure better disinfection of rooms and their contents, not only in houses where the scheduled infectious diseases have occurred, but also in those where Pulmonary Tuberculosis has been under observation, yet in the absence of disinfection of the bedding and articles of clothing which cannot be boiled, whatever may have been done in this direction, and however satisfactory, in the absence of disinfection of articles which are capable of playing such an important part in the propogation and spread of disease, the procedure falls short of disinfection in the true interpretation of the word, and also engenders a false sense of security in the houses of those in which thorough disinfection is imperative.

The term disinfection means the destruction of agents causing infection. An object is said to be infected when it is contaminated with those living germs which are capable of causing disease, so that thorough disinfection means that articles of clothing, bedding, etc., which have been in contact with, or which have received upon them, the voided infective materials from the skin, mouth, nose, ears, or internal organs of a person suffering from one of the dangerous infective diseases, must either be destroyed, boiled, or disinfected by steam.

To destroy all infected articles of bedding and clothing means a large and unjustifiable expenditure; furthermore, many articles cannot be boiled, in fact the greatest bulk, and by far the greater number of articles are composed of materials which will not admit of boiling without causing alteration of such a character as to render them unfit for further use. On the other hand steam disinfection can be utilised for practically every article that is to be disinfected, its manipulation is simple, and the resulting disinfection is the most reliable and safest of all forms of treatment.

In Tuberculosis of the Lungs it is of paramount importance that the bedding, clothing, etc., should be periodically disinfected, having regard to the prolonged course of the disease and the amount of infected material which is displaced from the lungs during coughing, and which finds lodgment upon adjacent articles of clothing and other effects.

Thorough disinfection in all infective diseases should be the aim of those concerned in Public Health administration, therefore disinfection in Tuberculosis must in future receive more consideration from Health Authorities, and in this disease not less than in any other infective disease the question of steam disinfection arises.

The thorough work of disinfection is handicapped owing to the absence of a disinfector, the subject of which I brought to the notice of the Committee in my report for 1908, and the conditions calling for remedy cannot be regarded as being of less importance now than they were at that time, therefore I urge the Committee to take steps to provide a steam disinfector.

The work under the Education (Administrative Provisions) Act, 1907, often discloses cases which it is the duty of the Education Committee to consider in respect to cleansing of children and disinfection of their verminous clothing.

The Children Act, 1908, throws similar responsibility and duties upon the Local Authorities.

STAFF OF HEALTH DEPARTMENT.

Additional Sanitary Inspector.

On the 3rd September, 1908, I asked for further assistance in the form of an additional Inspector in this Department, at the same time explaining my reasons for so doing, and at that time I recommended that a Female Sanitary Inspector should be appointed to carry out amongst other duties those relating to:—

(1) The enquiries into cases of Infantile Mortality.

(2) The visiting and instruction of persons suffering from Consumption.

(3) Work with respect to earlier Notification of Births.

Upon my recommendation being read the Committee decided to consider the matter more fully at a later date; in the meantime I was instructed to obtain information from a number of other towns. On September 25th of that year I placed the information before the Committee, when the matter was postponed indefinitely.

I have to point out that the relationship between the demands of the department and the available staff which existed at the time I asked for this additional help are now even more pressing, and must be regarded as a matter for serious consideration, having regard to the statistical facts pointed out in previous pages of this Report.

I do not press for the exclusive consideration of the appointment of a female, but the demands upon the department call for further assistance if the compulsory requirements of the Public Health Acts are to be carried out satisfactorily; furthermore, attention must be given to the three pressing matters before mentioned, otherwise many of the beneficial reforms with which they are co-related fail in the object of their institution if this essential co-ordination is absent.

MORTUARY.

During the past year 10 bodies were removed to the Public Mortuary, and post-mortem examinations were performed upon 5 of these at the Mortuary.

COMMON LODGING-HOUSES.

The common lodging-houses within the City were found to be in fairly satisfactory condition; any slight irregularities when discovered were at once remedied.

No prosecution was undertaken during the year against registered lodging-house keepers, but 3 persons were proceeded against for keeping a common lodging-house contrary to the Public Health Acts.

A conviction was obtained in each of the three cases, and a fine of 5s. was imposed in each instance, with a continuous penalty of 1s. a day if the misdemeanour continued.

COVERED MARKETS.

During 1908 I reported upon the prevalence of dogs in the Covered Markets, and the possible danger to the health of the public from these animals voiding their excreta in the Markets, and thereby infecting the numerous food products exposed for sale.

No improvement appears to have taken place during the past year although bills were posted up inside the Markets; dogs are continually to be found running about, and people still bring them into the Markets.

Some active step should be taken to limit this nuisance, and in cases where dogs are found to be without a guardian, it should be the duty of the Police to take charge of them, and in any case action under the bye-laws of the Corporation instituted to enforce the penalty provided.

WATER SUPPLY.

During the past year numerous samples of water have been taken and subjected to chemical and bacteriological examination. The quality of the water has remained uniformly good, but samples taken during the latter part of the year showed a higher standard of purity, both chemically and bacteriologically, than the samples obtained in the earlier months.

The experimental results of two samples of water, taken at the end of June and December respectively, are shown in the following pages, together with an account of one experiment as to its plumbo-solvent action.

The water supply of the City is obtained from Geltsdale, under the powers obtained by the Carlisle Corporation (Water) Acts, 1898-1906.

Under the above Acts the Corporation have powers to appropriate and use for the purposes of water supply the Upper and Lower Tarnmonath Springs, Old Water Bridge Springs, and Sheepwash Springs in the old Water Valley; Leach's Spring in the New Water Valley, Priest's Springs on the West slope of the River Gelt, and the waters of the two streams, Old and New Water, with their tributaries.

The water is collected and conveyed by pipes to a Receiving Chamber at the Junction of the Old and New Waters, and from thence it is sent forward by a 20″ cast iron main, 3 miles long, to a large Storage Reservoir in the Castle Carrock Valley, the capacity of which is upwards of 170 million gallons, covering an area of about 42 acres (now completed). The top water level of this Reservoir is 508 feet above Ordnance Datum.

Adjoining the Reservoir are seven filter beds covering an area of 5,250 square yards; two additional beds can be added when required.

After passing through these filters, the water is collected in a pure water tank, from whence it flows through a 16″ cast iron gravitation main 6 miles long, to the covered Service Reservoir at Cumwhinton, which has a holding capacity of 5 million gallons, the top water level of which is 275 feet above Ordnance Datum.

From Cumwhinton a 21″ cast iron main, 4½ miles long, conveys the water into the City.

In addition to supplying the City, water is also supplied to the following outside villages, etc.: Botcherby, Durran Hill, Scotby, Harraby, Upperby, Blackwell, Belle Vue, Etterby, Edentown, Stanwix, Kingstown, and Houghton.

Total output of water from Cumwhinton covered reservoir during the years 1907, 1908, 1909:—

Year.	Number of Gallons.	No. of Gallons per head, per day.
1907	628,445,000	30·73
1908	618,106,000	30·29
1909	629,455,000	30·77

Total monthly distribution of water from Cumwhinton covered reservoir during 1909:—

Month.	Number of Gallons.	No. of Gallons per head, per day.
January ...	52,901,000	30·46
February ...	46,206,000	29·46
March ...	53,578,000	30·86
April ...	49,068,000	29·20
May ...	55,014,000	31·69
June ...	52,648,000	31·33
July ...	55,870,000	32·18
August ...	57,818,000	33·35
September	53,570,000	31·88
October ...	51,452,000	29·63
November...	49,775,000	29·62
December...	51,555,000	29·69
	629,455,000	

REPORT ON WATER, CHEMICAL AND BACTERIOLOGICAL.

CHEMICAL ANALYSIS BY DR. HELLON.

Report on Samples of Water from Domestic Tap.

Results shown in grains per gallon.

	1909.	
CHEMICAL.	JUNE.	DECEMBER.
Total Solid Matter in solution dried at 212° F	9·520	8·120
Chlorine existing as Chlorides ...	·420	·490
Free Ammonia	·001	·001
Albuminoid Ammonia	·005	·006
Nitrogen existing as Nitrates ...	traces	·040
Oxygen absorbed in 15 minutes at 80° F	·093	·051
Oxygen absorbed in 4 hours at 80° F	·205	·098
Lead and other Poisonous Metals	None	None
Hardness before boiling	degrees 5½	6¼
Hardness after boiling	do. ½	1
Appearance in two-foot tube	Clear green	Slightly turbid, greenish yellow
Smell when heated to 100° F ...	None	None
Microscopical Examination	Slight deposit of vegetable debris	Slight deposit of vegetable debris
Sand	Under ·07 grain per gallon	Not stated

A determination of the plumbo-solvent action of the water was made according to the method of the Local Government Board in the June sample with the following results, stated in parts per 100,000 :—

Lead dissolved at 16 C—

1st 50 c.c.	2nd 50 c.c.	3rd 50 c.c.	4th 50 c.c.	5th 50 c.c.	Average.
traces	·10	·20	·20	·20	·14

The above figures indicate that though the water is capable of taking up minute traces of lead under conditions purposely arranged to raise the action of water on the lead to a maximum, even then the amount of lead dissolved is too small to be harmful to the consumer.

BACTERIOLOGICAL EXAMINATION BY PROF. DELÉPINE.

QUANTITATIVE ANALYSIS.	AVERAGE RESULTS OF THREE EXAMINATIONS.							
A Aerobic micro-organisms growing for 3 days in nutrient gelatine at 20° C to 21° C.	Number of colonies in one gramme of water.				No. of kinds of bacteria clearly recognisable.			
	JUNE.		DECEMBER.		JUNE.		DEC.	
Non-Liquefying Bacteria ...	3	55	7	15	1	3	2	4
Liquefying Bacteria	52		3		2		1	
Other Micro-Organisms	Nil		5		Nil		1	
B Anærobic Micro-Organisms ...	..		...		...		...	

QUALITATIVE ANALYSIS.	JUNE	DECEMBER.
A Bacteria associated with sewage or fæcal pollution ...	B. Coli communis found in 2 C C.	B. Coli communis not found in 100 C C.
B Bacteria associated with disease	Not found	Not found

PUBLIC BATHS.

The figures below show to what extent the Baths were used during the past year.

The total number of bathers was 47,043, as compared with 42,838 last year.

SWIMMING BATHS.	1st Class.	2nd Class.	Total.
Adults (both sexes)	2,141	11,266	13,407
Grammar School	528	...	528
School Children (Free)	...	12,886	12,886
Boys' Brigade, &c. (swimmers charged 1d. each)	...	6,483	6,483
Club and Contract Bathers	2,886	...	2,886
PRIVATE BATHS.			
Adults (Both sexes)	3,453	6,644	10,097
Vapour	135	...	135
Salt	5	...	5
*TURKISH BATHS.			
Males	174	375	549
Females	15	52	67
Totals	9,337	37,706	47,043

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* The New Turkish Baths were open to the public on the 20th September, 1909.

RAINFALL

The observations were taken during 1909 at the Old Waterworks.

MONTHS.	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	Average for 10 years 1899-1908.	1909.	
												Rainfall.	Number of days on which Rain fell.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
January	4.62	2.58	2.02	2.40	4.34	2.18	1.42	4.02	1.16	2.92	2.76	1.69	18
February	1.66	3.82	1.08	1.04	5.00	2.24	1.38	1.70	1.74	2.68	2.23	1.50	8
March	1.60	.44	1.84	2.36	3.76	2.54	2.56	2.00	2.65	3.68	2.34	3.14	11
April	2.58	2.44	2.28	1.58	2.06	2.36	2.90	.94	2.06	2.08	2.12	2.52	16
May	3.00	1.94	2.02	2.48	2.76	2.62	1.56	3.80	3.30	3.28	2.67	.81	11
June	1.18	6.58	1.76	1.66	1.60	1.86	1.26	1.46	4.64	1.70	2.37	2.95	11
July	3.80	1.60	1.26	2.46	4.80	1.84	2.54	2.04	2.38	3.50	2.62	4.44	19
August	1.80	5.60	4.40	2.50	4.90	3.54	3.06	4.72	3.32	3.18	3.70	3.68	16
September	3.68	1.98	.98	1.62	3.76	1.14	2.20	1.30	6.70	3.88	2.72	2.50	12
October	2.28	4.74	4.18	2.94	9.54	1.54	2.22	4.40	6.22	1.98	4.00	5.22	20
November	3.22	3.70	3.64	1.28	2.58	2.60	2.54	3.02	2.68	2.56	2.78	.86	7
December	1.76	4.14	3.74	3.20	2.14	2.26	1.34	2.48	5.64	1.86	2.85	3.82	13
Totals	31.18	39.56	29.20	25.52	47.24	26.72	24.98	31.88	36.49	33.30	33.16	33.13	162
Total number of days on which Rain fell	187	218	187	216	236	198	182	194	211	201	203		

VETERINARY INSPECTOR'S ANNUAL REPORT.

Gentlemen,

I have the honour of submitting to you my Eleventh Annual Report, which shows the work done by me during the year 1909.

One hundred and thirty-seven newly purchased and newly calved cows have been examined by me, and of these 129 were found to be free from disease; of the remainder, one had enlarged glands in the throat and dullness in the lungs. I advised the owner to have the tuberculin test applied, and the characteristic reaction was obtained; one cow had a chronic cough, five cows had nodular enlargements in the udder; the milk of the latter five animals was submitted for bacteriological examination and each sample was found to contain pus and blood; one cow was suffering from acute inflammation of the udder, due to overstocking, her milk was destroyed for 6 days, when it was determined upon microscopical examination to be normal. With the exception of the latter the whole of these unsound animals were returned to the sellers. I made searching inquiries to ascertain the destination of these cows, and found that they had left the district, and consequently were no longer a menace to the milk supply of the City.

Three thousand two hundred and sixty-three examinations have been made to ascertain the presence of disease likely to affect the milk supply. In addition to the cases mentioned above, the following diseases likely to affect the milk secretion were discovered amongst the regular occupants of the byres:—Three cases of congestion of the lungs, three catarrhal inflammation of the udder, two gastric derangement, two milk fever, and two septicæmia. The milk of these animals was destroyed until they were convalescent.

At the request of the Medical Officer of Health I made the following examinations at the London & North Western and Public Slaughter-houses:—Four carcases, of beef, four sheep, and two pigs. I certified all the carcases, with the exception of the two pigs and one of beef, to be unfit for human food. I was also called to examine a pig observed to be ill at the Public Slaughter-houses. I found the animal to be suffering from erysipelas, on account of which condition it was unfit for slaughter, and it eventually died.

The Auction Marts have been regularly visited each Monday, and 12,415 pigs have been examined by me.

The horses belonging to the Corporation stud, numbering 20, including two horses used for Fire Brigade purposes, I am pleased to report during the past year have been free from any serious illness.

I am,
Your obedient servant,
R. CRAIG ROBINSON, M.R.C.V.S.,
Veterinary Inspector.

APPENDIX.

The appendix contains—

A copy of my report to the Local Government Board upon an outbreak of Typhus Fever in April, 1909.

A copy of the memorandum of the Principal Medical Officer of the Local Government Board to Medical Officers and others relating to administrative measures against Tuberculosis.

A copy of the leaflet giving advice for the prevention of Consumption, which is left at every house where Consumption has been investigated.

TYPHUS FEVER OUTBREAK IN THE CITY OF CARLISLE.

Sir,

I have the honour to present a detailed report upon a recent outbreak of Typhus Fever in Carlisle.

On April 5th of this year I was asked to see two suspected cases of Scarlet Fever in a single-room tenement in Irving's Court, Botchergate, within this City; upon visiting the room and making an examination of the cases I found that two young persons, Mary Jane Forster and Minnie Forster, aged 17 and 15 years respectively, were suffering from Typhus Fever.

I had them removed to the Isolation Hospital (Crozier Lodge) at once, the room cleansed and lime-washed, the bedding and clothing destroyed by burning, and the furniture washed with a strong solution of formaldehyde.

Upon investigating the origin of the disease I discovered that a woman named Mary Dickinson, aged 67, grandmother of these two girls, had died in the same room on March 15th, and was buried on March 18th, and on looking into the certified cause of her death I found that she was stated to have died from Bronchitis, Heart Disease, and Exhaustion.

Up to the time of death of the woman Dickinson, and for some months previously, there had been in this room two large beds, which were occupied by Mrs. Dickinson, her son, and two grand-daughters, nieces of the latter, making in all four. The two girls Forster, I ascertained, became ill on March 30th and March 31st respectively, *i.e.*, 12 and 13 days from the date of the burial of the deceased woman Dickinson, and from which date they had occupied the bed upon which the corpse had laid.

Upon making investigations respecting the persons who had been in contact with the two girls removed to Hospital, and also with the deceased woman Dickinson, we obtained the names of a number of people who were afterwards visited daily for 15 days, and amongst whom no outbreak of the disease occurred, but on April 14th, in consequence of a conversation which our Chief Sanitary Inspector (Mr. Hill) had with a medical practitioner, he visited No. 42 King Street, Botchergate, where he found that Joseph Green (father), aged 40, Mary Jane Green (mother), aged 40, and Susannah Green (daughter), aged 12 years; and also 51 King Street, Botchergate, where he found Sarah Evelyn Lewis, aged 10, all suffering from severe headaches and extreme prostration.

Mr. Hill further discovered that Mrs. Green had been in contact with the woman Dickinson up to the time of her death. He communicated with me at once, whereupon I forthwith visited the houses and found that all four persons were suffering from Typhus Fever.

They were removed at once to the Isolation Hospital (Crozier Lodge), the houses and furniture were cleansed and disinfected, and the bedding and clothing destroyed. We had not previously been informed that Mrs. Green had been in contact with the woman Dickinson, but we now discovered that Mrs. Green had sat up with Mrs. Dickinson prior to her death, and had laid her out after death, and had also lent the Forster girls bed sheets to cover the corpse prior to the arrival of the coffin; these sheets, which were returned to Mrs. Green on March 19th, *i.e.*, the day after the funeral of the woman Dickinson, were stated to have been washed and boiled immediately on being brought back.

The girl Lewis, at 51 King Street, was a school-fellow and fond playmate of the girl Green, and spent much time after school, and at meal times, in the Green's house at 42 King Street, and from the clinical history of the case appears to have been infected about the same period as two members of the Green family.

Mrs. Green, in addition to suffering from the acute effects of the fever when I saw her, was eight months advanced in pregnancy, and great difficulty was experienced in obtaining anything in the nature of an accurate account as to when she was first taken ill.

According to evidence shown by the records of the temperature of these four cases, it would appear that they might all have been infected about the same period, but the temperature of Mrs. Green and the child Lewis fell to normal on the 7th day after removal to hospital, and that of the child Green fell to normal on the 10th day, whilst that of Mr. Green rose on the 10th day to 105.6 when he died.

All the responsible members of the Green family state that the sheets were the only things lent to the Forster girls, and that they were immediately washed and boiled after being sent home. Therefore it would appear that the Green family and the girl Lewis were either infected from the bed sheets, or, that Mrs. Green was infected during her visits to Mrs. Dickinson, and later was the means of infecting her husband and the two girls; this latter theory I think is the more likely one, and it would appear probable that owing to the pregnant condition of Mrs. Green the disease was capable of exhibiting aberrant features.

It appears that all the above-mentioned persons, together with several of the primary contacts, were at one time near neighbours, and residing in East Street, Botchergate, for a number of years, up to the time when the street was closed and the houses demolished; but before leaving, it was agreed that Mrs. Green should attend upon Mrs. Dickinson in case of serious illness.

Irving's Court, in which the two first cases were discovered, is a well court, reached by a long narrow passage which runs beneath shop property; it is practically in the centre of the City, and consists of two blocks of dwellings, mostly single tenements. The situation of the tenement in which the outbreak occurred is at the far end of the Court, and is one of four rooms crowded together and reached by wooden stairs, at the top of which is a short landing on to which the doors of the four tenements open. An accompanying plan shows the situation of the room (coloured red) and the relation of the court to the street.

King Street, in which the four cases occurred, is situated at the south side of the City; it is a moderately wide street, but the houses are of the type known as "back to back." A second plan shows this street and its relation to Botchergate. It is about a quarter of a mile distant from Irving's Court, and both King Street and Irving's Court are distant from half to three-quarters of a mile from any of the sites of the previous outbreaks which have from time to time taken place in the City.

I have been unable to trace out absolutely the origin of the outbreak. It appears that the two Forster girls never went away from home; one was engaged as housemaid in Carlisle from 8 a.m. to 8 p.m. each day, but she slept at home; the other was employed at a textile factory in the City and worked with new cotton stuff; no suspicion fell upon any other worker in the factory, and as nothing but new clean cotton is used in the manufacturing process, I attach no suspicion to that as a source of infection.

These people were poor; the two girls, out of their earnings, had in addition to keeping themselves and paying the rent to support the aged grandmother and the uncle.

Nothing had been brought into the house in the nature of old clothes, and no one visited the house, so far as one is able to judge, who would be likely to import the disease.

Regarding the Green family I have been unable to trace anything likely to cause infection other than the visits of Mrs. Green to Irving's Court, and I must here mention that she did not visit the house after laying out the woman Dickinson, on account of a quarrel about money matters, so that she could not be said to have been in contact with the Forsters during any period of their infective stage; if she became infected there it was through Mrs. Dickinson.

Mrs. Dickinson was old and bed-ridden for some months before her death, and no one, so far as can be ascertained, could have imported the disease into the house, thus the question arises, did Mrs. Dickinson die of Typhus Fever? and did she infect the Forster girls? In my opinion she did die of Typhus Fever and did infect the Forster girls, and this opinion is suported, if not conclusively proved, by the fact that Mrs. Green, who had been in attention upon her after the usual period of incubation, developed the disease and presumably infected her daughter, a neighbour's daughter, and unfortunately her husband, in whom the disease proved fatal.

I have the honour to be,
Yours obediently,
(Signed) JOSEPH BEARD,
Medical Officer of Health.

The Secretary,
Local Government Board,
Whitehall, W.

N.B.—The plans mentioned have not been reproduced for this Report.

COPY OF MEMORANDUM BY THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD ON ADMINISTRATIVE MEASURES AGAINST TUBERCULOSIS:—

In this memorandum it is proposed to supplement from a medical standpoint the information contained in the circular letter issued by the Local Government Board, which was sent with the Public Health (Tuberculosis) 1908 Regulations to all Sanitary Authorities and Boards of Guardians.

The prevention of tuberculosis and the aid which can be given to patients suffering from it depend in large measure on knowledge of its pathology, and the earlier part of this memorandum deals briefly with this aspect of the question. Afterwards are set forth the chief administrative measures that can be taken against the disease, and the different forms of aid that can be given to the patient, either through administrative or voluntary agencies.

1. *Scope of the Order and of this Memorandum.*

The Order deals only with those patients who come under the care of poor-law medical officers, either at home or in poor-law institutions. Such patients are often only temporarily within the scope of poor-law administration, though at other times they may still need help and supervision. Furthermore, public health administration, whether dealing with poor persons, as defined in the Board's Order, or with other patients suffering from pulmonary tuberculosis, is concerned with similar problems; though these problems are more acute, and help is more urgently needed in cases of poor-relief than in other cases. In all cases alike, however, it will be wise to take measures to avoid the spread of infection, and with this object in view to educate and train the patient in the method of life suitable to his disease, to secure for him separate sleeping accommodation so far as circumstances permit, either at home or in an institution, to disinfect rooms which have become infected, and to remove all conditions which favour infection or re-infection.

In a few towns all cases of pulmonary tuberculosis are compulsorily notifiable under local Acts of Parliament. In a considerable number of urban and rural districts, voluntary notification of cases of pulmonary tuberculosis is invited by the sanitary authority and secured in some proportion of the total cases of this disease. The Board have always advised that the payment of reasonable fees for the voluntary notification of cases of pulmonary tuberculosis to the medical officer of health is within the powers of a sanitary authority.

As poor persons frequently pass outside the scope of the poor-law, and as in many sanitary districts the Regulations as to Tuberculosis will be worked alongside of a system of voluntary notification of patients affected with pulmonary tuberculosis, but not in receipt of relief, it is convenient and desirable not to limit the scope of this memorandum strictly to poor patients.

2. *Characteristics of Tuberculosis.*

Tuberculosis is an infectious disease caused by the tubercle bacillus. Its development is aided by defective nutrition and by other conditions unfavourably influencing personal health, and by sanitary circumstances of environment; but the indispensable element in its causation is the tubercle bacillus, and the disease can be prevented by avoiding infection. The knowledge that tuberculosis is caused by the tubercle bacillus gives importance to the bacteriological diagnosis of tuberculosis mentioned in paragraph 4. In this memorandum infection from human patients alone is considered, as this is chiefly responsible for the causation of pulmonary tuberculosis.*

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* Infection by bovine tuberculosis occurs chiefly by means of infected cows' milk, and can be avoided domestically by boiling milk. In France and Germany cows' milk is almost universally boiled.

Tuberculosis is not only a preventable disease, but it can also be arrested, especially in its earlier stages; and indeed the vast majority of those attacked by it recover.

The total prevalence of tuberculosis as indicated by mortality has already greatly declined. This decline has occurred under the influence of improved sanitation and higher social welfare. These improved conditions have acted by diminishing infection and by increasing the resistance of the population to infection. Thus the vastly increased treatment of advanced cases of pulmonary tuberculosis in infirmaries and other institutions has been most valuable in securing segregation of patients from their families, as well as in securing humane treatment for the patients themselves. Diminution of overcrowding has diminished infection and increased the resistance to it; and other measures of sanitation and social improvement have acted either by increasing resistance to, or by diminishing the amount of, infection in the community, or usually by the combined influence of both these factors.

Degree of Infectiousness of Pulmonary Tuberculosis.—As an infectious disease, pulmonary tuberculosis differs in several important respects from most of the acute infectious diseases. Its infection is derived under ordinary circumstances from one channel only, that of the lungs, the infectious material being discharged as expectoration or as cough-spray. This mode of infection can be controlled by the patient with but little trouble if he is intelligent and scrupulously careful; whereas in the acute infectious diseases constant isolation of the patient is usually needed to protect susceptible persons. Against the limited channels of transmission of pulmonary tuberculosis must be set its protracted duration. It may be infectious during months or even years, instead of only for a few weeks. This statement needs to be remembered in conjunction with the following facts: 1st, a tuberculous patient discharges tubercle bacilli in his expectoration only at intervals; and 2nd, the evidence clearly points to the conclusion that in most instances short exposure to infection does not suffice to infect healthy persons to an extent that will produce serious disease.

These facts not only indicate that an exaggerated fear of infection in pulmonary tuberculosis is unnecessary; but they also emphasise the desirability of inculcating more exact knowledge as to the disease; and it is convenient to discuss at this stage the steps that can be taken to this end, although this discussion necessarily to a certain extent stretches into the province of administrative measures considered in later paragraphs.

3. *Educational Measures against Tuberculosis.*

Tuberculosis has often been described as a *disease of misery*. This is true, in the main, because misery favours infection; to a less degree because it renders the patient a ready victim to infection. But tuberculosis is much more a *disease of ignorance*, and many of the measures for its treatment and relief—whether by home visits, dispensaries, or sanatoriums—if properly employed, have among their most valuable results the hygienic training of the patient.

Educational measures will naturally comprise means for instructing the members of the general community, those more directly exposed to the infection of tuberculosis, and those already tuberculous. It is unnecessary here to enlarge upon the importance of teaching hygiene in school life as an aid in the fight against tuberculosis. An active and valuable propagandism outside school life is rapidly diminishing the number of those *who do not know* and increasing the number of those *who know* the essentials of the prevention of tuberculosis, and is increasingly bringing the pressure of public opinion to bear against indiscriminate expectoration, and against overcrowding and other evils of housing and occupation. Much more could be done in these directions by special instruction of various social groups, trades unions, friendly societies, and so on, as well as in the army and navy.

It is more urgently necessary that special instruction should be given to those more directly exposed to tuberculous infection; and the value of notification is especially evident in this direction. Precise knowledge of the conditions under which tuberculosis is transmissible, of the channels of infection, and of means for appropriate disposal of expectoration, &c., are most desirable, if the relatives and attendants upon consumptive patients are to remain free from danger and free from an exaggerated fear of infection. More complete knowledge is the best means of preventing misapprehension. This knowledge should be possessed not only by nurses and relatives attending patients, but so far as practicable, by those engaged in occupations in which tuberculosis is most rife, *e.g.*, among potmen, potters, cutlers, tin, lead or copper miners, bookbinders, printers, hairdressers, &c. Although cards of instruction are valuable, personal explanation by health visitors or others, when intelligently carried out, is much more efficacious; and opportunity may advantageously be taken as it arises to give collective instruction to nurses, to mothers, or to the members of friendly society and other clubs, in the groups particularly affected by tuberculosis.

Instruction of the tuberculous patient is essential for the prevention of tuberculosis. Pulmonary tuberculosis being a disease of protracted duration, the institutional or domestic isolation of patients during the whole course of the disease is impracticable. No responsible administrator would contemplate such a possibility. The ideal to be aimed at is that, wherever the patient lives and works, his powers of infectivity shall be inoperative. This ideal is not likely to be realised unless specific instructions are given in such a way that they will become effective in the patient's life. Of the means to this end, temporary abode in a sanatorium is probably the most effective (*see* paragraph 11). The habits of life thus initiated can be maintained by continued watchfulness and care under a private practitioner or in connection with a tuberculosis dispensary, and by the home-visiting of a competent and sympathetic health visitor or nurse (paragraphs 7, 8, and 9). They are most likely to be maintained if the desire for recovery and the conscientious determination to avoid infecting others are both brought to bear as motives influencing the patient's manner of life.

4. *Early Diagnosis.*

Stress has been laid upon teaching the nurses and relatives of the consumptive patient. Except in so far as it is given as part of instruction to the general community, instruction of those about a patient can only begin when the nature of his disease has been recognised. For this among other reasons every facility for securing early diagnosis is an important means of preventing tuberculosis.

Among the most valuable of these is—

Bacteriological diagnosis by detection of tubercle bacilli in the sputum. Although pulmonary tuberculosis can be diagnosed before there is any expectoration if the patient on consulting a medical practitioner is examined with great care, yet in actual experience the provision of facilities for the gratuitous bacteriological examination of sputum is one of the most successful means of securing an earlier recognition of cases of this disease than would otherwise occur.

The medical inspection of school children will, it is hoped, secure the detection of previously unrecognised cases among school children.

Under present conditions a large proportion of the total cases of pulmonary tuberculosis remain unrecognised until either consolidation or cavitation of lungs has occurred and patients are approaching or have reached the period of complete disablement for work. In such cases there must already have been many opportunities for spreading infection. Happily, there is strong reason to think that usually only those who have been exposed to protracted infection become infected to an extent that produces serious disease; but it is, nevertheless, very important that the precautionary measures should be begun at an early period of disease, especially as this enables the patient himself to receive effective because early treatment.

The visits following notification of cases of pulmonary tuberculosis may not infrequently be made the means of securing early diagnosis of previously unrecognised cases in the same household. At this point, among others, voluntary and official agencies can join forces for the giving of hospital and dispensary letters to failing members of the affected household.

The conditions under which dispensary and hospital aid can be obtained are mentioned later (pars. 10, 11 and 12). They need to be considered at this point in relation to the facilities for early diagnosis. More effective preventive measures could be taken were every encouragement given for the systematic treatment of "persistent colds," repeated attacks of "bronchitis" and the like, which may indicate an early stage of pulmonary tuberculosis. The difficulties that the poor frequently experience in obtaining hospital out-patient letters, and the delay involved in receiving skilled attendance at such institutions, render it desirable for large communities to consider the need for a special tuberculosis dispensary at which every encouragement is given for the early diagnosis of disease. The organisation of such dispensaries is considered in par. 10.

5. *The Medical Practitioner's position in relation to Preventive Measures.*

When a diagnosis has been secured, the first and most essential point is for the doctor in attendance, whether he be the poor-law medical officer or a private practitioner, to acquaint the patient with the nature of his illness. This is indispensable, if the active co-operation of the patient in regard to precautions is to be secured. It is equally necessary for the patient's own welfare, which depends in large measure on his intelligent carrying out of instructions. As the vast majority of cases of pulmonary tuberculosis recover when recognised early, and as life in more advanced cases can be prolonged by efficient treatment, there need be no hesitation in following this course.

The doctor will also consider whether, even though the particular case is not compulsorily notifiable, he will not be acting in the interest of his patient, as well as of the public health, to notify his case to the medical officer of health, under a voluntary system of notification.

Next must follow the giving of instructions to each patient and the disinfection of bedrooms, &c., when the need for this is indicated. Although the medical attendant may be able to give the personal instructions, it is none the less true that, under the usual conditions of medical practice, and particularly among the poor, supplementary aid is required to prevent infection and to secure the best arrangements for the patient's welfare.

It should be the aim of the medical officer of health to furnish this supplementary aid in a way that will secure the continued co-operation with him of the patient and of his medical attendant.

6. *The Administrative Control of Tuberculosis.*

Incidentally some of the measures for the administrative control of tuberculosis have already been mentioned. The educational measures enumerated in par. 3 go far towards preventing the disease; and indeed every administrative measure is successful just so far as it secures enlightened precautions on the part of the consumptive patient.

Measures to secure early diagnosis, whether by bacteriological or other means, stand equally high as means of preventing the disease; for direct precautionary means—apart from scrupulous care respecting expectoration on the part of the entire population—can only be taken when a diagnosis has been made.

By providing information to the medical officer of health as to the presence of cases of pulmonary tuberculosis among the poor the Regulations as to Tuberculosis recently issued by the Board enable sanitary defects to be promptly remedied and those administrative measures of control introduced that are set out in this Memorandum.

Of other measures against tuberculosis, the most important are the investigation of cases of the disease, advice being given, disinfection and cleansing recommended, and spit-bottles supplied to the poor; the provision of dispensary or poor-law treatment of patients; the provision of sanatoria and of hospitals for advanced cases of disease.

These measures are to a very large extent, also measures for aiding consumptive patients. The two objects cannot, in fact, be completely separated. The measures taken for preventing infection equally prevent the patient from receiving further doses of infective material, and he especially will gain by their success. That no strict line of demarcation can be drawn between personal and communal interests is further indicated by the fact that the community, by diminution of infection and by avoidance of loss of working ability, gains greatly when patients are cured, or when, apart from their cure, they are so housed that they cease to disseminate infection. Hence measures for the treatment of the individual patient cannot be left out of consideration in providing against the spread of the disease, any more than they can in the case of enteric fever. In both diseases the cure and the care of the individual patient are the most effective means of avoiding further cases.

7. *Procedure in Official Investigations.*

When a notification of a case of pulmonary tuberculosis has been received by the medical officer of health, certain inquiries should follow. These inquiries should be made by the medical officer of health or by a trained assistant, and the advice given at these visits should, as already indicated, be so given as not to interfere with advice already given by the doctor in attendance on the patient. The objection that the patient or his relatives on rare occasions make to the visit, can be met by indicating early in the interview the points in connection with which the patient can be helped, inquiries as to the previous or family history of the patient being taken up later, possibly at a second interview. By the exercise of tact and discretion, there seldom need be difficulty in obtaining all the information required for public health purposes, or in giving all the counsel that the patient and his family need. Above all, the investigator must not pursue inquiries in a manner or give information that may prevent a consumptive patient from continuing to earn his livelihood. His duty in this respect as a rule ends when he has advised as to the precautions to be adopted. This attitude does not prevent him from investigating, *apart from notifications,* the conditions under which consumptive patients work, and such investigations are sometimes indicated.

Re-visits should be made by an officer from the medical officer of health's department such as an inspector, health-visitor, or a nurse set apart for this work, who will encourage the patient in carrying out the treatment necessary for maintaining his ability to work, and the precautions needed to prevent infection. The results of these visits should be reported to the medical officer of health or to the attending physician (paragraphs 9 and 10) according to circumstances.

The Board's Regulations as to Tuberculosis provide for the medical officer of health obtaining information that shall enable him to keep in touch with consumptive poor-law patients when they change their abode. The Regulations also enable the medical officer of health to have infected premises cleansed and disinfected before they are occupied by new tenants. Incidentally also, the Regulations enable him to secure much more promptly than would ordinarily be practicable, remedial action in regard to insanitary conditions of dwellings, and particularly overcrowding under circumstances involving the specific danger of infection.

8. *Action against Infection.*

The chief means for the prevention of infection in tuberculosis is the prevention of indiscriminate expectoration. For this purpose sanitary authorities having the necessary powers may advantageously make byelaws prohibiting spitting in public carriages, halls, waiting-rooms, or places of public entertainment; and the enforcement of such bye-laws and the exhibition of notices warning against expectoration have a most beneficial influence.

The visit of the medical officer of health or of his assistant to the patient will be made the occasion for instruction as to covering the mouth when coughing, and as to the method of use of suitable handkerchiefs and of pocket spit-bottles. The sanitary authority can provide such spit-bottles or other suitable means of preventing the spread of infection. Frequently such precautions have not been adopted in the past course of the case, and disinfection and cleansing of bedrooms will therefore be indicated. Such disinfection should always be carried out when the patient changes his address.

Continued spread of infection can be obviated if the patient will carry out the simple precautions indicated above, concerning which detailed advice should be given in each case. The patient's habits as to spitting are, however, often difficult to change. Hence the importance of the short training of patients in a sanatorium, to which allusion is also made in paragraphs 3 and 11. At a later stage of illness difficulty in preventing infection arises from another cause. The patient is feeble and possibly bed-ridden; his cough is violent and his expectoration frequent and excessive; and under such conditions, in the home circumstances commonly prevailing among the poor, the avoidance of repeated and massive infection is difficult. It is at this stage that institutional treatment becomes a very important means of preventing infection (*see* paragraph 12).

It will be noted that, subject to not inflicting upon the poor person coming within the scope of the Board's Regulations as to Tuberculosis "any restriction, prohibition, or disability affecting himself, or his employment," &c., the Sanitary Authority can under these Regulations take all necessary measures for the disinfection or cleansing of infected articles and premises, as in the case of any infectious disease; for the safe disposal or destruction of infective material discharged by consumptive patients; for the proper use of sleeping apartments; and for furnishing any appliance, &c., that may help in preventing the spread of infection. These regulations will enable the Sanitary Authority and its officers to minimise the risks of infection from poor-law patients caused by unguarded spitting and by improper use of sick rooms. There will, it is hoped, be little difficulty in securing the observance of the same precautions in respect of other than poor-law cases of pulmonary tuberculosis.

If the patient should continue to be treated at home, visits will be made at intervals by an officer attached to the medical officer of health's department, or in larger towns attached to a tuberculosis dispensary; and these visitors will encourage the patient to pursue the necessary regime, and to make regular visits to his doctor or to the centre for medical aid.

9. *Home Training and Supervision.*

If the patient is treated at home throughout the whole course of his illness, it is much more difficult to secure his continuous adoption of the necessary precautionary measures than if he has had a short course of treatment and training in a sanatorium (*see* paragraph 11). To ensure this end requires conscientious perseverance on the part of the patient, and tactful advice and encouragement from the visitor sent as a result of notification. If the patient is in the charge of a family practitioner, the latter should be able to give much assistance. If the patient cannot afford to have a private doctor, the need for systematic medical assistance of some other kind arises. The patient may remain under the care of the poor-law medical officer, and in such cases it will not be difficult for the visitor to co-operate with him in the interest of the patient and of those about him. As a rule, however, poor-law cases of pulmonary tuberculosis, being most often cases of advanced disease, are preferably treated in the infirmary (*see* paragraph 12).

If the patient is treated at home under the care of a private practitioner, the visitor's work will be limited by the considerations advanced in paragraphs 7 and 8.

If the patient, although poor, is not a poor-law patient, but attends at intervals as an out-patient at a hospital or a dispensary, the visits he receives will advantageously be somewhat more frequent than when the patient is under the care of a private practitioner, and may be made helpful not only in advising the patient as to measures of personal hygiene and precautions against infection, but also in bringing him into relationship with the agencies for aid that his circumstances indicate as needed. Of these, the most important when completely organised is—

10. *The Tuberculosis Dispensary.*

The object of this institution is to secure early diagnosis for patients suspected to be suffering from pulmonary tuberculosis, and to direct their treatment in the light of knowledge not only of their medical, but also of their domestic and industrial needs. The ideal of the dispensary implies, therefore, a careful system of domiciliary visitation and investigation.

Such visitation and investigation have already been recommended (pars. 7, 8 and 9), and it is evidently undesirable that visits to the same patient should be duplicated. When such a dispensary is already at work, arrangements can be made for nurses attached to the dispensary to visit the patients at home, and enter the information obtained by them on forms, which will subsequently be seen both by the dispensary physician and the medical officer of health. These nurses in some districts will be the health visitors of the sanitary authority, and in such cases the domiciliary work of the dispensary becomes a sub-department of the medical officer of health's work.

A well-organised tuberculosis dispensary becomes a valuable aid in securing more general notification of cases of tuberculosis; and its visitors can not only secure that domestic precautions are taken, but also that the patients are brought into touch with the different forms of domestic aid, or with the sanatorium or hospital treatment that the needs of the individual case indicate.

A tuberculosis dispensary is especially adapted for the needs of large towns. When local circumstances do not permit of its formation, similar work can be organised in connection with other dispensaries, and with the out-patient departments of hospitals, voluntary or official health visitors being employed, as circumstances permit. Whether a new organisation is started, or whether—as may sometimes be both economical and efficient—old organisations are modified and improved for the new work, the essential points are that the doctor when treating his patient shall have before him all the circumstances relating to the patient's manner of life likely to aid him in giving rational advice; that the patient shall receive help adapted to his social needs; and that there shall be no redundancy or lack of supervision and of the help requisite for the patient and for the protection of others against infection.

11. *Sanatorium Treatment.*

Home treatment if depended upon alone often fails to prevent infection, besides failing to cure the patient. Hence the importance of sanatorium treatment when practicable. Under section 131 of the Public Health Act, 1875, the sanitary authority has power to provide such treatment for patients, whether patients are in the receipt of relief or not.

Considerations of finance will need to be borne in mind, and it is to be remembered that thoroughly efficient sanatoriums for consumptives need not be built upon expensive lines. Before embarking on any large scheme each sanitary authority should consider what it can do with arrangements already available. Some sanitary authorities have found that in the intervals of epidemics empty rooms or wards of their isolation hospitals can be utilised for the treatment of pulmonary tuberculosis, and have taken action accordingly.

In rural districts it will be practicable by the use of temporary huts or tents, erected either at the patient's home or in the grounds of the infirmary or of the isolation hospital, to treat consumptive patients with minimum expense; in other instances private houses may be adapted as hospitals for the purpose; while in some circumstances contribution towards the cost of erection and maintenance of a sanatorium jointly with others may be the best course.

With regard to the use under regulated conditions of the wards of an isolation hospital for the treatment of pulmonary tuberculosis, experience has demonstrated that this can be done with entire safety to the consumptive patient, and with great success in his treatment.

The sanatorium treatment of the consumptive may be directed towards the cure of the patient, or towards such amelioration of the patient and incidental training in desirable habits as may be practicable in a shorter stay than is required for his cure.

In considering the cure of the patient by sanatorium treatment, what has already been said as to early diagnosis needs to be borne in mind. In actual experience a large proportion of poor patients cannot be cured at the stage at which their disease is first recognised, without treatment which is so protracted and so large in amount when attempted for a large number of patients, as to be outside the range of present practical administration. Many such patients, however, either recover, or without complete recovery continue to be able to work indefinitely, even when protracted sanatorium treatment cannot be secured. Their working life can be extended and their capacity to spread infection can be stopped by an occasional stay in a sanatorium, of limited duration, say, for a month. It is on sanatorium treatment of this type for patients still able to work that stress may be laid. The patient usually does not lose his place by the short absence from work contemplated; he is willing to come into a sanatorium for such a short stay, when he would not accept more protracted treatment; and the improvement experienced during such a short stay in a sanatorium is often most remarkable. This, however, is not the only gain. When the patient enters the sanatorium his dwelling is disinfected; his relatives are relieved temporarily from a source of anxiety; and the patient while in the sanatorium is trained in the methods of disposal of sputum, and in the general hygienic regulation of his life in a practical manner that is scarcely possible at home. On his return home he is therefore no longer likely to be a source of infection, and the general hygiene of his home is almost certain to reflect the good influence of his stay in the sanatorium. From the standpoint of the sanitary authority a much larger number of patients can in this way be treated and prevented from becoming a source of infection, than if permanent cure of the individual patient were made the only consideration.

12. *The Institutional Treatment of Advanced Cases of Pulmonary Tuberculosis.*

A certain proportion of the total number of consumptives gradually deteriorate in health, notwithstanding every effort made on their behalf. The patients to whom this remark applies will diminish in number when they and the general public realise the importance of early and accurate medical recognition of the causes of failure in health, especially if accompanied by cough. Under present conditions, however, it is likely that a large number of cases of pulmonary tuberculosis will continue to occur that will remain unrecognised in the early stage of disease. It does not follow, as is too often and too hastily inferred, that the total amount of tuberculous infection cannot be steadily and even rapidly diminished. The number of cases of tuberculosis at any one time, so far as the disease is derived from other human cases of the disease, must depend on the total number of similar cases from which the infection of tuberculosis can be derived, and on whether the dosage of infection suffices under the conditions of its recipients to produce disease. Evidently then the occurrence of future cases of tuberculosis, even though these measures are not adopted early in each case, can be prevented in the proportion of the extent to which measures are adopted (*a*) for preventing the patient from scattering infection by cough and expectoration, and (*b*) for keeping the patient separate from those susceptible to infection. The first aim is secured by sanatorium and dispensary training and treatment, and by home visiting and advice, with the co-operation of the patient; the latter aim can be secured by providing the patient with a separate bedroom and suitable nursing at home, and, when this is impracticable, by providing efficient hospital accommodation.

In the homes of the poor, it often happens that suitable bedroom accommodation cannot be provided for advanced cases of pulmonary tuberculosis, and that the wife or other relative in charge of the patient is overworked and thus rendered more easily a victim to the same infection. Hence, the medical attendance and nursing of a large proportion of the total advanced cases in hospitals must form an essential part of any effective scheme for preventing tuberculosis. It is to a very large extent a need already met; for though the provision of hospital beds for such cases has not, in the main, been made with any intention of diminishing the total mass of infection, it has operated in that way. Not only in general and special hospitals but on an immensely larger scale throughout the country, and especially in our towns and cities—in which domestic overcrowding is most marked, and in which the domestic nursing of cases of pulmonary tuberculosis is therefore most dangerous—consumptives have been treated in workhouse infirmaries, many of them under excellent conditions, and probably all of them under conditions less likely to cause spread of infection than the dwellings of the very poor and the destitute. Such arrangements need to be extended, and the hospital treatment of the bed-ridden consumptive in the ideal state will be made so popular that domestic infection will become much less frequent than at present.

In the preceding pages no attempt has been made to enumerate all the measures that can be utilised against tuberculosis. Nor has it been urged that when notification of cases has been secured and free bacteriological diagnosis provided, subsequent measures against the disease should be taken in any particular order. This will necessarily vary with local needs and local possibilities. The best work will be secured if there is active co-operation between voluntary and official workers and agencies; and this remark applies particularly in securing sanatorium treatment for patients. If all the measures within the range of practical action are adopted, there is no reason to doubt that by wise administrative effort following upon the Board's Regulations as to Tuberculosis, the decline in the number of centres of infection can be made more rapid, and thus can be secured a quicker decline in the death-rate from tuberculosis than has hitherto been experienced. Although, owing to the long duration and occasional long latency of this disease, results in regard to it cannot be measured with accuracy except after the lapse of a considerable number of years, it may confidently be expected that administrative measures will enable sanitary authorities gradually to bring tuberculosis under their control, and to secure that it shall become as much a disease of the past in this country as leprosy has become.

A. NEWSHOLME.

February, 1909.

Advice for the Prevention of Human Tuberculosis.

(CONSUMPTION.)

CONSUMPTION IS AN INFECTIOUS DISEASE, and is almost always caught either from a person who is suffering from the disease or through infected air, milk, and possibly meat.

SOME CHILDREN are born with a constitution which strongly favours their developing consumption. Such persons should be very careful to avoid exposing themselves to this terrible disease.

INTEMPERANCE, overcrowding, bad air, darkness, dampness, colds, repeated sore throats, and many other diseases make people liable to take consumption by weakening their constitutions.

SOUND HEALTH is the best protection against the disease.

CONSUMPTION IS CAUSED BY A LIVING GERM, which may also cause disease of other parts of the body besides the chest, such as the bowels, especially in children, who are often attacked if infected milk is used. All milk should therefore be obtained from cows which are free from suspicion of tuberculosis disease.

EVERY PERSON SUFFERING FROM CONSUMPTION is likely to give the disease to other persons, chiefly by means of the spit, which contains the living germs. The spit of a consumptive person is very dangerous when it has dried, for the dust, with its germs, gets into the air, and is breathed into the lungs.

CONSUMPTIVE PERSONS should not spit, except into a small piece of clean rag or paper, which should be immediately burnt, or they should take care that none of the spit or phlegm is deposited about a room or floor, or any article of furniture or clothing.

IT IS POSSIBLE that consumption may be made almost harmless to other people by preventing the spit from drying and becoming dust.

IF A SPITTING CUP IS USED, it should contain a little water, or water and carbolic acid, or other disinfectant.

THE GERM OF CONSUMPTION is killed by sunlight and fresh air. A special spit bottle, to be carried in the pocket, can be bought for a small sum.

IF A HANDKERCHIEF or any kind of clothing has been soiled with spit, it should be boiled and washed as soon as possible.

THE CONTENTS OF THE SPIT CUP or spit bottle should be emptied down a water closet or drain, or on to a fire, and the bottle or cup should be cleansed with boiling water, followed by a disinfectant when possible.

NO SPOON, CUP, OR OTHER ARTICLE which has touched the mouth of a consumptive person should be used by anyone else until it has been boiled.

FOOD WHICH HAS BEEN LEFT by a consumptive should not be eaten by a healthy person.

NO ONE WHO IS A CONSUMPTIVE ought to kiss or be kissed.

NO MOTHER WHO IS CONSUMPTIVE should suckle a baby, nor first suck a dummy teat before inserting it into the baby's mouth.

EVERY PERSON WHO IS A CONSUMPTIVE ought to have a bedroom to themselves if possible, and if not, they should occupy a bed alone.

SUNLIGHT AND FRESH AIR are the very best disinfectants; they should be used very freely.

IN CLEANING ROOMS, damp dusters should be used, and [illegible] tea leaves or wet sawdust should be put down before sweeping, so that the dust will be removed without being spread through the air. The dusters should be boiled, and the sawdust or tea leaves burned.

EVERY THREE MONTHS during the life-time of a consumptive who spits or who has diarrhœa, and always after the death of a consumptive person, it is necessary that washing and disinfection of clothing, bedding, &c., should be thoroughly carried out. The disinfection of the room will be done by the Health Department, on notice being sent to the Health Department, 19 Fisher Street, Carlisle.

THE HEALTH COMMITTEE OF THE CITY earnestly solicit the help of those who are brought into contact with poor consumptives, in the hope that more light may be diffused amongst the less fortunate, and that words of advice, similar to the above, may be scattered abroad, so that at no very distant date this dreadful scourge, or white man's plague, may be stamped out.

JOSEPH BEARD,
Medical Officer of Health.

ANNUAL REPORT

OF

CHIEF SANITARY INSPECTOR.

CHIEF SANITARY INSPECTOR'S ANNUAL REPORT.

To the Chairman and Members of the Health Committee of the Carlisle City Council.

Gentlemen,

I have the honour of submitting to you my Seventeenth Annual Report, dealing with the work of the Department for the year 1909, in the administration of the various Health Acts and Bye-laws in force within the City.

INSPECTION OF THE CITY AND REMOVAL OF NUISANCES.

The lanes, courts, and yards within the City have at frequent intervals been inspected, and the necessary steps have been taken to procure the abatement of such nuisances as were discovered.

In many instances where the nuisances discovered were not due to structural defects, but were caused by the default of tenants, verbal intimation was given to them to abate the same. In addition to these verbal intimations 418 notices have been served calling for the abatement of nuisances of various characters as set out in the tabulated list below.

Table showing the number and nature of the nuisances dealt with by statutory notice during the year:—

Nature of Nuisance.	Number.
Choked and filthy water-closets	30
Defective and dilapidated water-closets	18
Defective w.c. cisterns, and absence of overflow pipes to same	10
Choked and defective drains	33
Offensive and defective gullies	82
Insufficient gully accommodation	2
Dilapidated and insufficient flagging & paving of yards and lanes	35
Defective eaves-gutters and down-spouts ...	93
Defective sinks and sink waste pipes	8
Defective roofs to premises	4
Defective walls, floors, ceilings, &c.	23
Dirty passages and staircases	8
Overcrowding of houses	5
Nuisances caused by keeping animals and fowls ...	10
Accumulations of refuse and manure	23
Absence of drainage	1
Absence of water to sanitary conveniences ...	7
Flooding of cellars	3
Accumulation of fish boxes	4
Insanitary manure pit	2
Smoke nuisance...	1
Absence of w.c. accommodation	1
Insufficient ventilation of cow-byre	1
Miscellaneous Nuisances	14
Total	418

I am pleased to again record that in no case was it necessary to institute police court proceedings to procure the abatement of any of the nuisances discovered, although in a few cases considerable pressure had to be brought to bear upon the responsible persons before the necessary work was carried out.

HOUSE TO HOUSE INSPECTION.

Systematic house to house inspection has been carried on as in previous years. The number of houses inspected shows an increase as compared with the year 1908.

Included in the following detailed table of House Inspection is the number of houses inspected in accordance with the provisions of the Housing of the Working Classes Act. Particulars of these houses are treated under the heading of Insanitary Property:—

Name of Street or Court.	Number of Houses.	Dirty Houses, Passages, and Staircases.	Dirty and Defective Water Closets.	Choked and Defecive Drains, Gullies, and Wastepipes.	Dilapidated Paving and Flagging.	Defective Roofs and Spouting to Houses.	Insufficient Drainage and W.C. Accommodation.	Defective Floors, Walls, Staircases, and Ceilings of Houses.	Miscellaneous
Union Street	119	1	1	27	10	7	...	6	3
Brunton Place	20	...	...	10	1	2	...	..	3
Hawick Street	11	...	...	8	1	3	...	...	...
Wetheral Street	11	...	2	9	4	2	...	..	...
Silloth Street	13	...	..	11	...	1	...	...	5
York Street	2	...	...	1	...	1	...	...	...
Wigton Road	6	...	..	3	...	...	...	...	...
Regent Street	7	...	...	5	2	2	...	...	...
East Norfolk Street ..	25	...	1	2	9	6	1	2	1
Hope Street	29	...	...	...	...	...	..	...	..
East Dale Street	3	...	...	...	...	...	...	..	...
Graham Street	35	...	...	...	1	10	...	4	...
Jane Street	20		See Insanitary Property.						
Willow Holme	3		See Insanitary Property.						
Waugh's Lane	9		See Insanitary Property.						
Irving's Court	4		See Insanitary Property.						
Rayson's-Ct., Drovers' Lane	17		See Insanitary Property.						
Bird-in-Hand Lane ...	23		See Insanitary Property.						
Totals	357	1	4	76	28	34	1	12	12

INSANITARY PROPERTY.

Six separate properties have been reported upon as being unfit for human habitation during the year, viz.:—

1. Nos. 2, 3, 4, 5, 6, and 9 Waugh's Lane, Botchergate.

2. Nos. 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, and 13 Rayson's Court, Drovers' Lane.

3. Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16 Bird-in-Hand Lane, Castle Street.

4. Nos. 8, 10, 12, 14, 16, 18, 20, and 22 Jane Street,

5. Nos. 2, 4, and 6 Jane Street; and 5, 7, and 9 Willow Holme.

6. No. 26 Backhouse's Walk.

Premises No. 1 consisted of four single-room tenements and five two-room tenements, all of which were in a dilapidated condition. In each of the two-room tenements one room was situated behind the other, and, with the exception of the light and air which the back room obtained through the door communicating with the front room, was totally deficient of these essentials. This property was taken in hand by the owners and "gutted." New floors, ceilings, and stairs were put in, and the walls re-plastered. In the two-room houses the partitions separating the rooms were demolished, and the whole space thrown into one room, thus securing light and ventilation. The necessary external repairs were also done, and the property made thoroughly habitable at a cost of about £147.

Premises No. 2 consisted of seventeen single and double-room tenement dwellings situated in a triangular yard off Rickergate. All these dwellings were in a very insanitary condition, owing to the dilapidated nature of the walls, floors, ceilings, etc. This property was treated in a similar manner to the property described above, with the exception of Nos. 3, 4, and 8. These houses the owners decided not to repair. A closing order was therefore obtained against them, and is now in operation. The cost of repairing these premises was about £200.

Premises No. 3 consisted of twelve single and nine two-room houses situated in a long rectangular yard on the east side of Castle Street. The condition of this property was similar to the properties already described. The nature of the work done was of a more extensive character than in the preceding cases, as, in addition to the repairs necessary to make the houses habitable, it included the demolition of a house and the reconstruction of the water closets. The demolition of a house in this lane effected a very great improvement, as it opened up the lane at the east end, and thus admitted the morning sun and produced more efficient ventilation. The cost of the work to this property amounted to over £250.

The owners decided not to repair houses Nos. 2, 4, and 5, and, as in the preceding case, a closing order has been obtained and is now in force.

Premises No. 4 consisted of eight two-room tenements on the north side of Jane Street, Willow Holme. This property was in every respect as bad as the preceding properties. The owner of these premises decided to convert the tenement dwellings into self-contained houses. He therefore submitted plans to your Committee, which were approved, and the work of alteration has now been completed, and a very great improvement has been effected in this street at a cost of about £150.

Premises No. 5 consist of a block of two-room houses, six in number, situated at the corner of Jane Street and Willow Holme. They are similar to those in Jane Street, but are of the type known as back-to-back houses. The owner has decided to convert these into self-contained houses, and has submitted a plan for that purpose. The plan has been approved, but the work has not yet been completed.

Premises No. 6 consisted of two two-roomed houses in Backhouse's Walk. One of the rooms in each of these houses was totally devoid of light and ventilation, with the exception of that which was obtained through the door when open. The rooms are now no longer used, the opening into them having been "bricked up."

The premises situated in East Tower Street, which have been mentioned in previous reports, have now been demolished, and part of the site thrown into the widening of this street.

DRAIN TESTING.

Several applications have been received to have drains tested where the occupiers have suspected them to be defective. The drains were tested in each case, and the defects found are included in the general list of nuisances.

SMOKE EMISSION.

During the year the factory chimneys in the City have been kept under observation. In two cases the emission of black smoke was found to be of such a dense and continuous nature as to be a nuisance. The defaulting owners were reported to your Committee, and were afterwards written to to abate the nuisance. In one case an improvement has been effected, and in the other the owners have intimated that by the end of this year the smoke nuisance on their premises will be effectually abated, as they intend to instal electrical power into their works, and thus do away with the boilers.

COMPLAINTS.

Eighty-nine formal complaints have been received during the year. The following shows the list of nuisances in connection with these complaints:—

Choked and Defective Drains	33
Accumulation of Refuse	10

Overcrowding of Houses	8
Defective Water Closets	8
Keeping of Animals and Fowls	6
Dirty Houses	5
Defective Spouting	3
Smoke Nuisance	3
Flooding of Cellars	2
Defective Flagging	1
Miscellaneous	10
Total	89

PUBLIC ABATTOIR AND RAILWAY SLAUGHTER-HOUSES.

Frequent visits have been paid to the Public Slaughter-house, and it has always been found to be kept in a satisfactory condition.

The Slaughter-houses of the London and North Western and North Eastern Railway Companies have also received the same attention as in previous years, and their condition generally has been satisfactory.

The following tables give the number of animals killed at the Slaughter-houses during the years mentioned:—

Year.	Beasts.	Sheep and Lambs.	Calves.	Pigs.	Total.
1900	4,052	17,098	521	5,023	26,694
1901	3,787	16,298	611	3,953	24,649
1902	3,758	17,153	660	3,808	25,379
1903	3,845	16,301	692	4,322	25,160
1904	4,075	16,860	759	4,753	26,447
1905	3,946	15,657	751	4,674	25,028
1906	4,059	15,274	797	4,139	24,269
1907	4,020	14,745	962	4,419	24,146
1908	3,772	14,911	760	4,064	23,507
1909	3,713	16,799	690	3,744	24,946

L. & N. W. RAILWAY COY.'S SLAUGHTER-HOUSE.

Year.	Sheep.	Lambs.	Calves.	Pigs.	Total.
1908	31,623	...	...	...	31,623
1909	39,969	...	16	...	39,985

N. E. RAILWAY COY.'S SLAUGHTER-HOUSE.

Year.	Sheep.	Lambs.	Calves.	Pigs.	Total.
1908	28,402	...	...	...	28,402
1909	47,852	...	...	...	47,852

It will be noticed that there is a general increase in the total number of animals slaughtered as compared with last year. This is especially noticeable in the figures for the North Eastern Railway Slaughter-house, which have almost doubled those of 1908.

DISEASED AND UNSOUND FOOD.

The Public Markets have been regularly visited and the food exposed for sale therein inspected. The fruit, fish, etc., exposed for sale on hawkers' barrows in the streets have also received attention.

The annexed table shows the amount of food unfit for human consumption condemned during the past year:—

Nature of Food Seized.	Quantity.
MEAT.	
Beef - - - -	24960 lbs.
Mutton - - - -	1008½ ,,
Veal - - -	238 ,,
Pork - - - -	126 ,,
FISH.	
Kippers - - - -	40 boxes
Cod - - - -	1 box
FRUIT.	
Pears - - - -	224 lbs.
Pineapples - - - -	17

FOOD AND DRUGS ACT.

During the year I have purchased the undermentioned articles and submitted them to the Public Analyst for analyses. The majority of these samples were not purchased in accordance with the provisions of the Food and Drugs Act, but according to the recommendation of the Board of Agriculture. None of the vendors of the adulterated articles were therefore prosecuted, but each was cautioned.

The following table gives the particulars of the articles analysed, and action taken :—

Article.	Number of Samples taken.	Genuine.	Adulterated.	Extent and Form of Adulteration.	Remarks.
Butter	24	24	..		
Margarine ..	17	17	...		
Pepper	13	9	...		
Do.	...	...	4	3% Sago Starch added	
Milk	12	11	...		
Do.	...	...	1	Milk Fat 0·2% below limit	
Lard	12	12	...		
Baking Powder	10	10	...		
Coffee	9	9	...		
Mustard ..	9	9	...		
Sweetmeats ...	3	3	..		
	...	..	...		
Number of Samples taken	109				
Genuine ...	...	104			
Adulterated ...	...	...	5		

HOUSE REFUSE REMOVAL.

13,032 loads of refuse have been collected and removed to the refuse tips and destructor during the year. This shows an increase of 256 loads as compared with the number removed last year.

GARBAGE.

233 loads of garbage and refuse have also been removed from the Public Slaughter-house by the Corporation carters:—

Month.	Number of Loads removed from the			Total.	Slaughter-House Garbage. Loads Removed.
	East District.	West District.	Morning Ashes.		
January ...	328	224	567	1,119	21
February ...	304	221	546	1,071	20
March ...	362	260	590	1,212	22
April ...	320	246	577	1,143	21
May ...	299	219	548	1,066	16
June ...	263	211	551	1,025	18
July ...	250	194	546	990	19
August ...	234	202	513	949	17
September ...	260	212	533	1,005	22
October ...	282	221	555	1,058	19
November ...	294	266	600	1,160	19
December ...	352	270	612	1,234	19
Totals ...	3548	2746	6738	13,032	233

URINALS AND GULLIES.

As in previous years the urinals and gullies have been regularly cleansed by the staff of men employed for that purpose. One two-stalled urinal has been erected near to the Tram terminus on the London Road.

FACTORY AND WORKSHOPS ACT, 1901.

The whole of the workshops upon the register have been inspected, and where any infringements of the provisions of the Act were discovered, steps were taken to have them remedied.

Section 128 of the Factory and Workshops Act requires a copy of the Factory Abstract to be affixed in each workroom. In nine workshops this abstract was not affixed, and the Factory Inspector was notified in accordance with the provisions of Section 133 of the Act.

Twenty-four complaints have been received from H.M. Inspector of Factories regarding Factories and Workshops, viz.:—

Limewashing needed	8
Insufficient means of escape in case of fire	4
Sanitary defects	12
	24

All the complaints have received attention, some of the defects complained of have been remedied, and negotiations are in progress with regard to the others.

It will be noticed that four of the above complaints were owing to the insufficiency of means of escape in case of fire. Section 14 of the Factory and Workshops Act provides that in every factory and workshop in which more than forty persons are employed, sufficient means of escape in case of fire must be provided. In each of these four cases, however, less than forty persons were employed, so that the provisons of Section 14 could not be enforced. It is obvious, as instanced from the above complaints, that cases will arise in which there are insufficient means of escape in case of fire, although the number of occupants of the factory or workshop is less than forty. In such cases the District Council may, under Section 15 of the Factory and Workshops Act, 1901, make bye-laws providing for means of escape from fire in the case of any factory and workshop.

OUTWORKERS.

Six lists of outworkers have been received as required by Section 107 of the Factory and Workshops Act, 1901. All the premises were visited, and were generally found to be in a satisfactory condition.

The annexed table gives particulars of the nature of the workshops (excluding bakehouses), number of registered workrooms, accommodation for workers, number of inspections made, defects found, and action taken:—

Occupation.	No. of Premises.	No. of Registered Work-rooms.	Accommodation for	
			Males.	Females.
Dressmakers, Milliners, Mantlemakers, Costumiers	77	109	...	642
Tailors	39	61	306	75
Boot & Shoe Repairers	16	23	48	...
Cloggers	19	20	73	...
Jewellers, Watch Repairers	12	12	22	...
Joiners, including Cabinet Makers and Upholsterers ...	14	20	74	...
Saddlers and Harness Makers	5	6	24	...
Cycle Repairers ..	4	4	12	...
Tin Plate Workers ...	1	1	3	...
Confectionery and Sugar Boiling ..	2	2	5	14
Box Maker	1	1	3	...
Plumbers' Workshops...	4	4	52	...
Weighing Machine Repairers	2	2	5	...
Fishing Tackle Makers	3	3	2	4
Umbrella Repairers ...	2	3	6	2
Photographers ...	5	7	5	8
Stocking Knitters ..	2	3	...	19
Leather Dresser ...	1	3	20	...
Coach Painter ...	1	1	3	...
Lath Maker	1	1	4	...
Wood Carving ...	1	2	8	...
Polisher	1	1	5	...
Carpet Repairing ...	1	1	3	...
Waterproof Makers ...	1	1	6	...
Dyers	1	1	6	...
Totals ...	216	292	695	764

Premises.	No. of Inspections made.	No. of Defects found.	Notices written.	Defects remedied.
Factories	11	7	...	7
Workshops	278	16	14	16
Domestic Workshops...	15	...	...	...
Workplaces	1	...	...	...
Bakehouses	81	14	12	14
Total ...	386	37	26	37

BAKEHOUSES.

There are sixty-four bakehouses upon the register. Included in this number are three underground bakehouses.

Fourteen defects—chiefly need of limewashing—were found in these bakehouses, and twelve notices were served. All these defects were remedied.

DAIRIES, COWSHEDS, AND MILKSHOPS.

There are fifty cow-keepers and milk-sellers upon the register, 9 milk-sellers and 1 cow-keeper having been registered during the year. Their premises have been frequently inspected, and many improvements have been carried out in some of the cow byres as regards more abundant air space and ventilation, as well as in the matter of drainage. The minimum standard of air space fixed by the regulations made under the Dairies, Cowsheds and Milkshops Orders, viz.:—800 cubic feet per cow is now enforced in all the cow byres.

COMMON LODGING-HOUSES.

The number of common lodging-houses upon the register is four. They have been frequently visited, both during the day and at night time, and have generally been found to be kept in a satisfactory condition.

The houses of three other persons whom I suspected of keeping common lodgers have been kept under the close supervision of your inspectors, and, from midnight inspections made, the grounds of my suspicion were well founded, as in each case "nightly" lodgers were found therein. In one case the overcrowding was found to be of a very grave nature, as many as fifteen adults occupying 2 small rooms. Each of these offenders was prosecuted and fined 5s., and a continuous penalty of 1s. per day for each "nightly" lodger found on the premises in the future. These houses have been frequently visited since the prosecution, and no ground for further complaint has been found.

VANS USED AS DWELLINGS.

All the vans which entered the City for the purpose of attending the fairs, etc., have been inspected as to their sanitary condition, and also for the purpose of detecting the existence of any infectious disease therein.

The vans were all found to be in a satisfactory condition, and the inmates free from illness of an infective nature.

FRIED FISH AND POTATO SHOPS.

There are thirty-two fried fish and potato shops upon the register. These premises have all been inspected, and where any infringements of the provisions of the Public Health Acts were found, steps were at once taken to remedy the same.

ICE CREAM.

Owing to the cold summer very little ice cream was made, but all the premises whereon it was made or exposed for sale were visited.

OFFENSIVE TRADES.

The premises whereon offensive trades are carried on have received close attention, and have generally been found to be in a satisfactory condition.

INFECTIOUS DISEASES.

The following table gives the nature and number of Infectious Diseases investigated and reported upon to your Medical Officer of Health during the past two years:—

Nature of Disease.	Investigated.		Removed to Hospital.	
	1908.	1909.	1908.	1909.
Typhus Fever	...	8	...	8
Smallpox	...	...	...	...
Diphtheria	27	35	18	18
Membranous Croup	5	1	2	...
Erysipelas	63	79	2	2
Typhoid or Enteric Fever ...	2	1	1	1
Scarlet Fever	89	119	56	87
Puerperal Fever	3	1	...	...
Totals	189	244	79	116

TUBERCULOUS DISEASES.

All the notified cases of tuberculosis have been investigated and reported upon to the Medical Officer of Health, and in each case advice as to mode of living, nourishment, etc., was given by your Inspectors.

DISINFECTION.

All the houses from which cases of Infectious Diseases have been removed to Hospital, and rooms in which patients were isolated at home, have been disinfected with formaldehyde.

The stud of horses under my control at the Corporation Depôt numbers eighteen. Nine of these are engaged in connection with house refuse removal, eight are used for street cleansing purposes, and one is kept as a relief horse. I am pleased to state that there has been no serious illness among them during the year.

I am, Gentlemen,
Your obedient Servant,
C. W. HILL,
Chief Sanitary Inspector.

Health Department,
April 15th, 1910.